



**भारत में प्रतिरक्षण  
कार्यक्रम की राष्ट्रीय समीक्षा**

**NATIONAL  
REVIEW OF IMMUNIZATION  
PROGRAMME IN INDIA**

**DR. J.P. GUPTA  
DR.(MRS.) INDIRA MURALI**



आरोग्यम मुक्तामपदा

**राष्ट्रीय स्वास्थ्य एवं परिवार कल्याण संस्थान**  
**NATIONAL INSTITUTE OF HEALTH AND FAMILY WELFARE**  
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# NATIONAL REVIEW OF IMMUNIZATION PROGRAMME IN INDIA

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# **NATIONAL REVIEW OF IMMUNIZATION PROGRAMME IN INDIA**

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आरोग्यम् सुखसम्पदा

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**NEW MEHRAULI ROAD, MUNIRKA, NEW DELHI - 110067**



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## Preface

The Expanded Programme on Immunisation was initiated in India a decade ago with the objective of protecting eligible population through immunisation services against six selected diseases. With increasing emphasis being given on child survival in this country, the programme attained still higher priority and in 1985 it was dedicated to the memory of late Prime Minister Smt. Indira Gandhi. Accordingly, the Universal Immunisation Programme (UIP) was launched with accelerated efforts for universal coverage of immunisation of infants and pregnant women. More recently, the programme has pre-empted its place in one of the National Technology Missions.

Time-bound programmes with specific goals, such as immunisation programme, need to be systematically reviewed to assess the level of achievements. From time to time, immunisation coverage evaluations have been carried out. Such evaluations, although helpful in judging the progress, usually fail to spell out the factors that inhibit the progress. For this purpose, there is a conspicuous need to widen the scope of such evaluation efforts and to include various managerial and operational facets. Such a broad-based review would enable us to understand the strengths and weaknesses of the programme and help in applying appropriate corrective measures.

It is in this context that Ministry of Health and Family Welfare decided to undertake a national review of immunisation programme in totality and the National Institute of Health and Family Welfare (NIHFW) was entrusted with the responsibility of undertaking this venture. The Institute was conscious of the fact that in a country like ours, with wide range of diversities in demographic, socio-cultural and political characteristics, it may not be possible to provide solutions which could be universally applicable. For this reason, all the States in the country had been covered under this review and were treated as independent units so as to offer State-specific pragmatic solutions. In order to understand the policies and practices related to immunisation activities in the urban areas, four major urban metropolitan areas were also included for the review.

The present report is the outcome of this national review and presents the major observations made with reference to important facets of the immunisation pro-



gramme, viz., policies and strategies, resources, operational and managerial processes, programme performance and achievements, etc., in all the States and four metropolitan cities covered. However, union territories were not included in this review.

Due to high priority attached to the programme and huge investment made, the programme has evoked criticisms from several quarters. Therefore, an attempt has been made in this report to specifically go into various policy issues and present an objective view on the same.

Expert teams, which conducted the review in individual States/urban metros, had prepared State reports and the major observations were shared with the State programme authorities. At the national level, however, the findings were collated and consolidated and in this national report the common as well as State specific features/issues related to different aspects of the programme have been highlighted.

Effort has also been made to review the programme in totality. Apart from the administrative aspects, the perception and level of understanding among community as well as among the various staff categories involved in the programme have also received attention in this review.

The programme performance has been assessed both by reviewing the various reports of target achievement at national, State and district level and carrying out immunisation coverage evaluation of beneficiaries by using cluster sampling technique. The findings about the performance indicating the inter-district variations in different study units have been presented in detail. Similarly, the impact of the programme can be measured either by looking through the existing system of disease surveillance including sentinel centres or by carrying out disease surveys using certain indicators which tell about reduction in morbidity and mortality.

Using neonatal tetanus mortality and lameness due to poliomyelitis as parameters to find out the impact of the programme, an attempt has been made in the present review to measure these two in the selected study units.

Results of review of existing surveillance system, coverage evaluation and disease surveys in different States have also been presented.

Need for coordination among agencies within and outside health sector and involvement of non-governmental agencies, voluntary agencies, etc., is being increasingly appreciated for making the programme more effective. Such an approach requires clear cut policies, and a well established mechanism of coordination. Different efforts for coordination between health facilities as well as role of medical colleges, private practitioners, voluntary agencies, Integrated Child Development Services Scheme and health guides in the programme have been reviewed.

Quality of services provided under Immunisation Programme have often been suspected. Poor maintenance of cold chain, inadequate sterilisation of equipments coupled with poor techniques of immunisation resulting in complications like



abscess formation are common accusations made against the programme. Care has been taken during the review to observe such service situations and to examine the extent to which quality standards are adhered to. The results of such observations on above areas have also been highlighted in this report.

A careful review of the important findings has enabled us to highlight the major achievements in the programme by different study units and also to elucidate the major problems and constraints coming in the way of smooth functioning of the programme. Keeping these in view, few recommendations have been made which we hope, policy planners as well as programme managers will find useful and try to adopt some, if not all.

**J.P. GUPTA**  
**INDIRA MURALI**



## Acknowledgement

This report is the result of considerable toil and time of hundreds of known and unknown individuals who have shared their valuable experience and wisdom, beginning from preparatory phase to carrying out the review through the length and breadth of the country within the stipulated time.

Ministry of Health and Family Welfare deserves rich tributes for deciding to get the 'Immunisation Programme' reviewed. It evinces their sincerity and honesty of purpose and keenness to improve the programme. We are thankful to them for assigning us the responsibility to carry out the review - a task of immense magnitude and importance. We feel proud of the confidence reposed in our Institute.

UNICEF and WHO lent their full support for the review and their valuable suggestions given from time to time and generous grant made our task easy. We thankfully acknowledge their contribution to make the review a real success.

Beginning of a programme is not always easy. It tends to elude clarity of vision, purpose and direction. We were lucky to find support from the members of the Task Force, drawn from Ministry of Health, Planning Commission, I.C.M.R., UNICEF, WHO and our own Institute. They constantly reviewed and guided us to finalise the objectives and design of the study as well as strategy to carry it out. We sincerely thank them.

Preparing the tools/schedules for data collection for the study was not an easy task. They had to be precise to elucidate the meaningful, yet not so exhaustive. The members of 'Planning Group' comprising experts from Ministry of Health and Family Welfare, UNICEF, WHO, external experts and large number of faculty members from our Institute undertook the task of preparing the schedules. They deliberated for long hours for several days, went over hundreds of questions, arguing, disagreeing, yet finally arriving at a conclusion. Our schedules bear testimony to their sincere efforts and depth of understanding. There are not enough words to thank them nor space would permit us to elaborate our feelings.

We were lucky to share our proposal with State Directors of Health Services, State E.P.I. Officers, and Officials from four metropolitan cities. Enthusiastic response to our proposal and assurance to provide all help was a great source to instill



sense of optimism. Their positive response was reflected in providing excellent arrangement for the stay and mobility of our teams, and cooperation given by their officials at all levels. They welcomed our team members, assisted them in carrying out the review and complete the voluminous schedules. But for their support it would have been nearly impossible to carry out the review. With all our humility and sincerity we acknowledge their magnificent contributions and thank them.

Our thoughts go to hundreds of medical and paramedical professionals who worked as members of district level review team, State level Supervisors or Central Team Convenors. Drawn from different States, they were moved into new and unknown districts, regions and States. Throughout the period of review they covered hundreds of miles in plain or hilly regions, stretches of desert or lush green belts to reach their destination, to be welcomed either with a cheer or a frown. They interviewed thousands of individuals, filled hundreds of pages of questionnaire. Sitting in a sophisticated health facility in an urban elite area, or a dilapidated building of a subcentre located in an unreachable area, they worked with the same zeal and equanimity. Their task would not end by day, they worked every night, sieved, shifted analysed, and synthesized the data collected, with a determination to complete the district and State reports before they left back for their own States. It was the dynamic leadership provided by central team convenors and the active cooperation of the team members that enabled us to accomplish the task within the stipulated time. We would like to record our appreciation, gratefully acknowledge their contribution and sincerely thank all the members of the teams and their convenors.

A special word of thanks to Dr. D. Banerjee, Dr. Ashish Bose, Dr. Vijaykumar, Dr. Sameer Chowdhary, Dr. Shanti Ghosh, Mrs. M. Kataria and Shri B.B.L. Sharma who carried out indepth studies on the programme in certain selected States and districts. They have critically examined many policy and organisational issues and have offered useful suggestions.

Now a word for hundreds and thousands of unknown who were burdened with their own chores, worries, getting ready for the day's work, returning after hard work, or interrupted during the course of work, and yet allowed us to use their time and generously responded to innumerable questions though not of any use to them. We thank the community leaders, beneficiaries and health staff working at different levels including health guides and anganwadi workers and express our sincere gratitude for the cooperation extended by them.

There are always a large number of people in an organisation who make their mighty, yet invisible contribution to make a programme successful. They generally remain the unsung actors of the drama. In our case, we were greatly assisted by the Administration, members of stores, accounts, establishment, works and maintenance



section, department of communication, reprography, statistical and field units and computer section, etc. of our Institute. We appreciate and acknowledge the significant contribution made by the members of these various sections and sincerely thank them.

Dr. Shakuntala Bhatnagar, Professor, Planning and Evaluation, spent a number of days interviewing our team convenors on their return and helped us in elucidating many observations which many of them had failed to give expression in their reports. Mr. Hasib Ahmed, D.D.(Admn.), not only shared the administrative responsibility, but by cutting down the gordian knots of red-tape, smoothened the pace of our work. Dr. N.S.Deodhar was kind enough to review our report and give valuable suggestions for its improvement. Dr. R.P. Bhagi, Consultant in the project assisted us in preparing this report. All of them deserve special mention and our sincere thanks. We would like to express our special word of thanks to Dr. T.P.Jain, one of the Consultants in this project. Throughout the period of the review, he had been working untiringly. His willingness to work continuously for hours and days together, despite various constraints, had been an inspiration to all concerned with the review. We are indeed grateful to him for all his valuable contributions and help.

We will be failing in our duty if we do not thank our own secretarial staff Mr. Balbir Singh, Ms. Kusum Lata and Mr. R.N. Nimoria for all the assistance provided by them throughout our project.

Last but not the least, Mr. Tilak Raj Arora, since the very beginning of the project, has been typing all our schedules, interim report, draft report etc. on Word Processor. We have revised and re-written many times our own write-up, yet he has always re-done them with a cheerful smile. We are very much thankful to him.

We conclude by thanking once again every one who has been included in this list and many others who may have been left out.

**J.P. GUPTA**  
**INDIRA MURALI**



## List of Abbreviations

A.N.M.	Auxiliary Nurse Midwife
A.W.W.	Anganwadi Worker
A.W.C.	Anganwadi Centre
B.E.E.	Block Extension Educator
C.H.C.	Community Health Centre
C.M.H.O.	Chief Medical and Health Officer
D.I.O.	District Immunisation Officer
D.H.S.	Director of Health Services
Dy.C.M.H.O.	Deputy Chief Medical and Health Officer
D.E.M.O.	District Extension and Media Officer
E.P.I.	Expanded Programme on Immunisation
G.O.I.	Government of India
H.A.(M)	Health Assistant(Male)
H.A.(F)	Health Assistant (Female)
I.C.M.R.	Indian Council of Medical Research
I.E.C.	Information Education and Communication
I.S.M.	Indian System of Medicine
I.L.R.	Ice Lined Refrigerator
L.H.V.	Lady Health Visitor
M.I.S.	Management Information System
M.O.	Medical Officer
M.P.W.	Multipurpose Worker
M.O.H.F.W.	Ministry of Health and Family Welfare
N.I.H.F.W.	National Institute of Health and Family Welfare
N.I.C.D.	National Institute of Communicable Diseases
N.R.I.P.	National Review of Immunisation Programme
P.P.S.	Probability Proportional to Population Size
P.O.L.	Petrol Oil and Lubrication
U.I.P.	Universal Immunisation Programme
V.P.Ds.	Vaccine Preventable Diseases



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## **EXECUTIVE SUMMARY**







## Introduction

The Government of India through its National Health Policy has expressed its major concern for improving health of women and children. The National Immunisation Programme being implemented in this country is one such endeavour which has been accepted as priority programme in the policy in this direction. Dedicated to the memory of late Prime Minister Smt. Indira Gandhi, the Universal Immunisation Programme was launched in 1985 with accelerated efforts for universal coverage of immunisation for young children as well as to improve the quality of services. This programme has been included in one of the seven technology missions.

It is imperative that programmes of this nature which are implemented with clear objectives and specific time-bound goals and targets need be systematically reviewed to examine if the programme has been effective in achieving the set goals.

It is in this context that the Ministry of Health and Family Welfare decided to undertake a National Review of Immunisation Programme at the end of about a decade of its implementation. The National Institute of Health and Family Welfare was identified as the nodal institution and it was entrusted with the responsibility of undertaking this massive effort.

## Objectives

1. To review the policies, strategies and plans of action for EPI/UIP at different levels of health administration i.e. Central, State and District levels.
2. To measure the progress in implementation of the EPI/UIP in relation to targets for acceleration of the programme, accessibility, coverage, mortality and morbidity reduction.
3. To identify the bottlenecks and constraints for the progress of the immunisation programme at different levels of programme implementation.
4. To make recommendations for overcoming the constraints and problems and thereby improving the implementation of the programme qualitatively and quantitatively including assessment of additional resources required for this



purpose.

The State was considered as a study unit in this review and all the 25 States were covered. In addition, for obtaining information on similar aspects related to the programme in urban areas, four major urban metropolitan areas viz. Madras, Bombay, Calcutta and Delhi were also included in the review. Thus, the total number of units studied was 29 i.e. 18 major States, seven small North Eastern States and four urban metropolitan areas.

The programme was viewed in its totality covering its different aspects in terms of programme inputs like policies, strategies and resources, the details of processes of programme implementation including operational strategies, management of different resources, etc., programme performance in terms of extent of coverage of beneficiary population and impact of the programme in terms of disease occurrence with reference to paralytic poliomyelitis and neonatal tetanus.

### **Methods of Data Collection**

Various methods used for data collection were as follows:

- i. Interview/discussions with programme officials and staff at Central, State, District, Primary Health Centre (PHC), subcentre and village levels.
- ii. Study of records, reports, guidelines, instructions and other relevant documents.
- iii. Observation of Immunisation activities, service premises, cold chain maintenance etc.
- iv. Vaccination coverage survey using the 30 cluster sampling method among children aged 12-23 months and for pregnant women.
- v. Conducting disease survey for lameness and neonatal tetanus.
- vi. Interview with community members, leaders and representatives of non-governmental agencies.

### **Sampling Procedure**

#### *i. For 18 Major States*

From each major State, Immunisation Programme operations and procedures were studied at the State headquarters and in two selected districts from each State. Immunisation coverage and disease surveys (lameness and neonatal tetanus) were conducted in these two districts.

*Selection of Study Districts:* For purpose of selection, in each State, the total districts covered under UIP were grouped into two categories viz.:

- i. Those which were included under UIP during 1985-87, and
- ii. Those covered during 1987-88.



From each group, one district each was chosen using the Probability Proportional to Population size Sampling (PPS).

*ii. For Seven Small North-Eastern States*

Operational details of Immunisation Programme were studied separately from each State headquarters and at least in one district and sub units viz. PHCs, subcentres, urban institutions etc. within this district in each State. For immunisation coverage and disease survey, all seven States were combined together as one unit, in which the districts covered under UIP in 1985-87 and 1987-88 were grouped separately and from each group, 30 clusters each were selected and studied.

*iii. For Urban Metropolitan Areas*

Two units of 30 clusters in each of metropolitan town were included in coverage evaluation and disease surveys.

From each district/study unit, apart from immunisation coverage evaluation and disease survey, operational details of the programme were studied from selected PHCs, subcentres, urban health facilities, sentinel centres, etc. through interviews with health functionaries and record study.

### **Manpower Involved in the Review**

In order to collect information about various facets of the programme from 29 units (as indicated above), 29 expert teams were identified whose members included faculty from medical colleges and public health experts from various organisations. Each team consisted of a team convenor, three supervisors and team members whose number varied between 15 and 20.

About 20-30 paramedical personnel of the rank of Health Supervisors were deputed for each district for carrying out lameness and neonatal tetanus survey under the supervision of district team members. In order to ensure independent appraisal of the programme, officers and paramedical staff were selected from neighbouring States/districts.

### **Major Observations**

#### **Policy Aspects**

Sense of urgency and commitment of national government is reflected from the fact that Immunisation Programme had been included in the 20 point programme and a technology mission for immunisation has been created to look after the various aspects of programme. Likewise, States have accepted to carry out the programme and formed technology missions to look after the same.

The policy decision has been to integrate immunisation programme with primary health care and immunisation services are to be provided through PHC and its subcentres. Support manpower and like health guides and anganwadi workers are expected to assist the health workers in successful operation of the programme.

For enhancement of the performance under the programme and to enable the States to meet special requirements of the immunisation programme, Government of India provided 100% financial support to States for creation of posts of Cold Chain Officers and Technical Assistant at State level and District Immunisation Officer, Refrigerator Mechanic, Statistical Assistant, Stenographers and Drivers etc. at district level. In addition, the Central Government has also committed to provide vaccines, cold chain equipments, and other related supplies for effective implementation of the programme.

As a matter of policy, it has been already decided that all districts in the country would be included under UIP by 1990 in a phased manner.

Clear cut policies for implementing Immunisation Programme in urban areas were found to be almost non-existent.

### **Organisational and Operational Aspects**

From the organisational and operational point of view, it was found that the programme was being implemented in an integrated manner involving almost all types of health facilities/institutions. However, at the district level, the District Immunisation Officer (DIO) who is expected to be responsible for the management of the programme had faced some problems like lack of adequate administrative authority, ambiguity regarding relationship with other district health officials etc.

### **Resource Availability**

In the area of availability of various types of resources and their management for the programme, the main items considered in the review were infrastructure facilities, financial resources, material supplies like vaccines and equipments and health manpower.

#### **1. Infrastructure Facilities**

Being a programme which has been integrated functionally at the peripheral level, infrastructure facilities within the district could be a major influencing factor for the success of Immunisation Programme.

Relevant data in this regard about 42 districts covered during review are presented below:



### 1. Availability of subcentres

- No. of districts with subcentres as per expected norms	15 (35.7%)
- No. of districts with more no. of subcentres as per expected norms	4 (9.52%)
- No. of districts with less no. of subcentres as per expected norms	13 (30.95%)
- Information not available	10 (23.8%)

(The percentage deficiency in subcentres in the study districts ranged between 10-40%)

### 2. Availability of Female Worker at Subcentre

- % of subcentres with female staff residing either within area or in subcentre building	75.7%
- % of subcentres with female staff residing outside area	24.3%

### 3. Population Density in Study Districts

<100/sq.km. (range 10-100)	7
100-200	12
201-300	9
301 +	14
Total number of districts	<hr/> 42 <hr/>

### 4. Approachability

With the exception of Aizwal district, distance between farthest PHC and district headquarters required travel time upto eight hours.

In nine districts few PHCs/subcentres were cut off from the rest for few days to three months either during winter or rainy season.

### 5. Availability of Vehicle

All except four districts (Tura, Tripura, Bhiwani and West Nimar) had at least one vehicle exclusively for UIP at headquarters.

All Block PHCs within study districts had vehicles though generally in one district 1-4 vehicles of PHCs were off the road for want of repairs.

## 2. Manpower Resources

The Government of India provided 100% financial support for creation of certain posts like DIOs, Cold Chain Officers, Technical Assistants, etc. How-

ever, in many States either many of these posts were still vacant or the available personnel were not adequately trained.

All States had designated one official at State Directorate level to look after Immunisation Programme either exclusively or alongwith some other programme. Cold Chain Officers were in position in all States and urban cities except in Delhi and Assam.

With regard to staff position at district level in 42 study districts the number and percentage of districts where vacancies existed among the various categories of staff is as follows:

Category of Staff	Number and Percentage of Districts with Vacancy
DIO	9 (21.4%)
Refrigerator Mechanic	21 (50.0%)
Statistical Assistants	14 (35.7%)
Drivers	12 (28.5 %)

Other staff categories like MOs, Health Assistants (F) and Health Worker (F) though were not exclusively posted for UIP were expected to play crucial role in Immunisation Programme. Their position in study districts was as follows:

**Table 1**  
*Number of Districts with Percentage of Vacancies  
in Different Staff Categories*

% Vacancy	Category of staff		
	MO	HA(F)	HW(F)
Nil	7	12	13
< 10	7	7	9
10-20	9	6	8
21-30	5	3	3
31-40	3	1	2
41 +	5	7	1
No Information	6	6	6
Total no. of districts	42	42	42

Thus, to summarise:

- MOs post vacancy was over 20% in 13/42 (30.9%) districts
- HA(F) post vacancy was over 20% in 11/42 (26.1%) districts
- HW(F) post vacancy was over 20% in 6/42 (14.2%) districts



### 3. Vaccines and Cold Chain System

With reference to vaccines, with the exception of polio vaccine, the country, could be considered to have achieved self-sufficiency in production of other vaccines. From the beginning of the current financial year 'Serum Institute of Pune' has gone into production of measles vaccine, hence there will be no need for its imports in future. Steps are being taken for expanding the production of BCG. OPV is still being imported. To meet requirement of vaccines UNICEF has given its full support in importing vaccines.

Cold chain system which is one of the most crucial elements of the programme for ensuring potency of vaccines has been strengthened considerably at all levels, though the situation regarding availability of such equipment and their maintenance in different States varied considerably.

Likewise, provision has been made for maintenance of cold chain equipments. Rate contract with suppliers in each State has been entered into. Task Force at each State has been set up to regularly review position of cold chain. Regular monitoring of cold chain equipment is expected to be done from different levels and every effort is made to ensure to remedy the fault immediately.

A contingent amount of Rs.2,000 has been sanctioned for each PHC for maintenance of cold chain equipment. It also covers the expenses for purchase of ice, kerosene oil, etc.

To ensure good quality of vaccine, officials at all levels are required to pick up samples of OPV and send them to different laboratories for potency testing. Number of laboratories have been identified and are equipped to carry out the potency tests.

Observations regarding various aspects of logistics and cold chain maintenance system at district headquarters and PHCs are shown below:

	District %	PHC %
1. The refrigerators and freezers in working order	97.6	81.5
2. There is a thermometer in all the refrigerators	88.0	73.0
3. The daily temperature record properly maintained in all the refrigerators	78.57	67.2
4. Irregular temperature recorded	71.0	16.4
5. There is thermometer in the ILR	97.6	74.1
6. Vaccine after expiry date found stock		3.7

7.	DPT or TT vaccine found frozen	2.4	4.8
8.	Open vaccine vials found in the stock		6.3
9.	Returned unopened vials are marked	76.1	49.2
10.	'First-in first out' principle is observed	86.1	68.8
11.	More than three months supply of vaccine present	11.9	15.3
12.	Less than one month supply of vaccine present	7.2	52.1
13.	Food or drinking water seen alongwith vaccines in the refrigerator	2.6	6.9
14.	Frozen ice packs available in the freezer compartment	96.0	61.9
15.	Vaccine stock register are maintained	97.6	85.2
16.	i. Stock book entries are made properly	90.0	79.4
	ii. Stock book entries are made regularly	90.0	80.4
	iii. Stock entries correspond to actual stock in hand	90.0	77.2

The area which needed special attention with regard to supplies of all kinds e.g. vaccines, cold chain equipments, syringes, needles, etc. was the distribution system ensuring their availability at peripheral/institutional levels like PHCs and subcentres.

### **Training of Health Personnel**

Training of health personnel of different categories in immunisation programme has become an ongoing programme in every State. Middle level managers are being trained at national level. Medical officers and paraprofessionals are being trained at district and Primary Health Centres respectively. Central Government is providing financial support to State Governments for training programmes. However, backlog in training, poor quality of training processes and inadequacy of training aids etc. were not uncommon.

### **Operational and Managerial Processes**

During the review, operational and managerial processes regarding the programme like programme planning, supervision, monitoring and evaluation



of the programme, information system involved and quality of services etc. were also covered.

i. *Planning Activities*

Detailed Action Plans worked out systematically were being used in most States, at different levels, though there was much scope for improvement in order to make them really operational.

Particulars about planning activities in different districts are shown below:

	No. of Districts
Action plans available	33 (78.5%)
District officilas involved actively in Action Plan Preparation	23 (54.7%)
Allocation of targets using specific population criteria	29 (69.04%)
Correct information used for estimating vaccine required	33 (78.5%)

ii. *Adhering to Scheduled Immunisation Sessions*

Out of 383 workers at subcentres, 54.2% stated to have experienced disruptions in immunisation sessions.

The proportion of workers stating different reasons for disruption is indicated below:

**Table 2**  
*Proportion of Heath Workers Expressing Various Reasons of Disruption of Vaccination Sessions*

Reasons for Disruption	% Respondents
1. Shortage of vaccine/diluent	50.6
2. Called for other duties	37.3
3. Absence of workers	28.8
4. Lack of transport	23.2
5. Shortage of syringes	7.4
6. Shortage of needles	6.8

iii. *Special Strategies*

In 20 (46.5%) districts special strategies were being adopted to achieve immunisation coverage in inaccessible areas or in special population groups.

#### *iv. Micro-planning in Immunisation*

Further, it was encouraging to note that States have begun strategy of micro-planning in a few districts to ensure more realistic planning with active involvement of health functionaries at all levels.

#### *v. Monitoring*

Similarly, monitoring of the programme at all levels has been strengthened through review of the various reports on performances as well as on situation regarding various resources i.e. availability, consumption etc. Even here in some States over-emphasis was found to be laid on programme performance alone without adequate attention to the quality of performance or other aspects of the programme.

#### *vi. Supervision*

Supervision, by and large, was found to be one of the weak areas in the programme management. Though supervisory visits were being conducted by officials in many States, they were more routine in nature with inadequate attention to documentation and follow-up of the observations made during such visits. Further, all aspects of the programme like resource availability and their consumption or use, quality of performance, disease surveillance, etc. were not adequately attended to in many States and districts while making supervisory visits. Regular meetings in all States held at different levels also helped in monitoring and supervision.

Further details about supervisory practices in the district are shown below:

	No. of Districts
Supervisory visits by officials as per scheduled dates	17 (40.4%)
Checking cold chain, vaccine stocks and performance records during visits	20 (47.6%)
Checking disease surveillance also during visit	14 (33.3%)
Visit observations recorded	11 (26.19%)
Monthly meeting records maintained	32 (76.19%)
Reports on complications and adverse reactions at district	38 (90.4%)
District officials satisfied with health workers performance	24 (57.1%)



- Use of supervisory check-list practically did not exist in any districts
- The average number of supervisory visits per month by district officials to peripheral institutions was four which ranged between 1-10.

### Immunisation Coverage

One of the major observations made during the review was related to the immunisation performance and the coverage of beneficiary population.

#### a. Fully Immunised Children

The distribution of study districts/units (43) and their names by immunisation status of children i.e. completely protected is presented in Table 3, 4 and 5. Without measles, only 20 districts achieved more than 50% coverage.

With measles this number was brought down to only Two. No district had achieved 85% coverage of immunisation.

**Table 3**

*Distribution of Districts/Units According to Percentage of Fully Immunised Children*

Percentage	Without Measles	With Measles
< 25	9	16 (2 urban)
26-50	14 (2 urban)	25 (5 urban)
51-75	16 (4 urban)	2 (1 urban)
76-85	4 (2 urban)	-
86 +	-	-
Total	43*	43

\* 35 districts + 8 urban units = 43

Table 4

*Distribution of Districts /Units According to Percentage of Fully Immunised Children (with measles)*

% Coverage	Number	Name of Districts
< 25	16	Cuddapah, Warangal, Nowgaon, Katihar, Singhbhum, Bijapur, Nanded, Ganjam, Bharatpur, Jhalawar, South Arcot, Kanpur Dehat, Burdwan, Murshidabad, Calcutta (District I), Calcutta (District II)
26-50	25	Dibrugarh, Panchmahal, Rajkot, Bhiwani, Hissar, Bilaspur, Shimla, Anantnag, Quilon, Kasargode, Badgam, Tumkur, West Nimar, Mandla, Pune, Sambalpur, Sangrur, Coimbatore, Patiala, Meerut, Bombay (District A), Bombay (District B), Delhi-B, Madras (North), Madras (South)
51-75	2	North Goa, Delhi-A
76-85	Nil	
86 +	Nil	

Table 5

*Distribution of Districts /Units According to Percentage of Fully Immunised Children (without measles)*

% Coverage	Number	Name of Districts/units
< 25	9	Cuddaph, Katihar, Bijapur, Warangal, Bharatpur, Nowgaon, Singhbhum, Kanpur Dehat, Murshidabad
26-50	14	Dibrugarh, West Nimar, <b>Nanded, Ganjam, Patiala</b> , Meerut, Burdwan, Hissar, Mandla, Sambalpur, Jhalawar, South Arcot, Calcutta I and Calcutta II
51-75	16	Panchmahal, Rajkot, Bhiwani, Shimla, Bilaspur, Anantnag, Coimbatore, Badgam, Kasargode, Tumkur, Pune, Sangrur, Bombay (A)
76-85	4	North Goa, Quilon, Bombay (B), Delhi (Urban), Delhi (Rural)
86 +	Nil	

*b) Immunisation Coverage for Different Groups of Vaccines*

Distribution of districts/units according to immunisation coverage for



individual groups of vaccines is shown in Table 6.

**Table 6**

*Districts/Units Showing Coverage of Four Different Groups of Vaccines*

% Coverage	No. of Districts			
	DPTs	OPVs	BCG	Measles
< 25	2	2	4	11
26-50	5	6	10	21
51-75	25	24	21	11
	(3 urban)		(2 urban)	
76-85	6	6	5	-
	(3 urban)		(4 urban)	
86 +	5	5	3	-
	(2 urban)		(2 urban)	
Total	43	43	43	43

Out of 43 districts/units 36 (83.72%) achieved over 50% coverage for DPT3.

Out of 43 districts/units 35 (81.3%) achieved over 50% coverage for OPV3.

Out of 43 districts/units 29 (67.4%) achieved over 50% coverage for BCG.

Out of 43 districts/units 11 (25.5%) achieved over 50% coverage for measles.

*c. Dropout Rates for DPT (1-3) and OPV (1-3)*

Distribution of districts and urban units according to dropout rates for DPT (1-3) and OPV (1-3) is shown in Table 7. Out of 43 districts/units, 14 (32.5%) had reported dropout rate of over 20% for DPT (1-3). Out of 35 districts, 18 (51.42%) had reported dropout rate of over 20% for OPV (1-3).

**Table 7**

*Dropout Rates for DPT (1-3) and OPV (1-3)  
in Districts and Urban Units*

% Dropout	Number of Districts	
	DPT	OPV
<10	13	7
11-20	16	10
21-30	8	11
30+	4	6
Data not available	2	1
Total	43	35*

\* Excludes urban units.

Names of districts and urban units according to dropout rates for Polio (1-3) is shown in Table 8.

**Table 8**

*Dropout Rates for Polio 1-3 in Districts/Urban Units*

%Coverage	Number	Name of Districts/Units
< 10	7	North Goa, Panchmahal, Bhiwani, Quilon, Pune, Sangrur, Madras (South)
11-20	18	Dibrugarh, Rajkot, Hissar, Bilaspur, Badgam, Kasargode, Tumkur, Mandla, Ganjam, Sambalpur, Coimbatore, Calcutta (District-I), Calcutta (District-II), Bombay (District A), Bombay (District-B), Delhi-B, Madras (North), Madras (South).
21-30	11	Cuddapah, Warangal, Shimla, Anantnag, Patiala, Jhalawar, South Arcot, Meerut, Burdwan, Murshidabad, Delhi-A
31+	6	Nowgaon, Katihar, Singhbhum, Nanded, Kanpur Dehat, Bharatpur
Data not available	1	West Nimar

Name of districts and urban units according to dropout rates for DPT (1-3) is shown in Table 9.

**Table 9**

*Drop out Rates for DPT (1-3) and /Urban Units in Districts*

Dropout rates	Number	Name of Districts/Units
< 10	13	North Goa, Panchmahal, Bhiwani, Bilaspur, Quilon, Pune, Sambalpur, Sangrur, Calcutta-I, Bombay A, Bombay B, Madras (North), Madras (South)
11-20	16	Cuddapah, Dibrugarh, Nowgaon, Rajkot, Hissar, Shimla, Badgam, Kasargode, Bijapur, Tumkur, Mandla, Ganjam, Coimbatore, Calcutta-II, Delhi (urban), Delhi (rural)
21-30	8	Warangal, Anantnag, Nanded, Patiala, Jhalawar, South Arcot, Meerut, Burdwan.
30 +	4	Kanpur Dehat, Bharatpur, Katihar, Singhbhum
Data not available	2	Murshidabad, West Nimar

*d. TT Coverage for Pregnant Women*

Distribution of districts/urban units according to TT immunisation status of pregnant women is shown in Table 10. Out of 43 districts/units, 35 (81.4%)



achieved over 50% coverage for TT. Of these 11 had achieved more than 85% coverage.

**Table 10**

*Distribution of Districts/Units by % Coverage of Tetanus Toxoid  
Two doses/Booster to Pregnant Women*

<b>% Coverage</b>	<b>No. of Units</b>
< 25	1
26-50	7
51-75	17
76-85	7
86 +	11
<b>Total</b>	<b>43</b>

*e. Vaccination Coverage in North-Eastern States*

Status of immunisation coverage among infants and pregnant women in North-Eastern States is shown in Table 11.

**Table 11**

*Vaccination Coverage in North-Eastern States*

<b>Immunisation Status</b>	<b>Proportion of eligibles protected in districts by year of initiation of UIP</b>	
	<b>1985-87</b>	<b>1987-88</b>
Fully Immunised	30.9%	21.02%
DPT	56.8%	44.3%
OPV	49.7%	44.8%
BCG	51.1%	29.9%
Measles	36.6%	20.0%
TT II Pregnant women	59.9%	49.5%

Percentage of coverage for all groups of vaccines was higher in the group of districts where UIP was initiated in 1985-87 as compared to the group of districts taken up in 1987-88.

*f. Reasons for Failure of Immunisation*

Reasons for failure of immunisation as reported by mothers in study districts/units are shown in Table 12.

**Table 12**

*Distribution of Districts/Urban Units by Different Reasons  
for Failure of Immunisation.  
(a) Lack of Information*

Causes	Number of units reporting with % range	Number of units reporting more than 25 per cent
Unaware of need	40 (18.99-52.66)	32
Unaware of need	32	4
to return	(0.5-27.1)	
Place and time	34	2
unknown	(0.92-26.5)	
Fear of side	33	3
reactions	(0.6-30)	
Wrong ideas about	18	Nil
contra-indications	(0.95-8.8)	



*(b) Obstacles*

<b>Causes</b>	<b>Number of units reporting with % range</b>	<b>Number of units reporting more than 15 per cent</b>
Place too far to go	26 (0.5-48.9)	3
Time of immunisation inconvenient	23 (0.8-13.33)	Nil
Vaccinator absent	27 (0.8-23.33)	6
Vaccine not available	31 (0.5-23.2)	4
Mothers too busy	32 (2.6-19.2)	4
Child ill not brought	32 (1.8-32.0)	6

*(c) Lack of Motivation*

<b>Causes</b>	<b>Number of units reporting with % range</b>	<b>Number of units reporting more than 15 per cent</b>
Postponed till another time	31 (10-24.1)	6
No faith in immunisation	33 (0.5-28.5)	3
Rumours	18 (0.5-12.6)	Nil

**Results of Observation of Immunisation Sessions**

Immunisation sessions held at subcentres and outreach were observed for selected quality aspects and findings are presented in Table 13.

Table 13

*Results of Observation of Immunisation Sessions*

Specified Conditions Satisfied	Proportion of sessions	
	Subcentre	Outreach
1. Immunisation services integrated with other MCH activities	84.6	76.6
2. Immunisation cards filled correctly	80.5	70.2
3. Immunisation cards given to the mothers	81.3	60.4
4. Age screening done correctly	88.6	82.0
5. Following immunisations are being given		
DPT	97.2	97.0
OPV	94.4	94.0
BCG	77.6	83.8
TT	94.3	90.0
Measles	84.1	83.8
6. Vaccines within expiry date	78.8	-
7. Vaccine kept on ice at the time of immunisation	83.9	80.0
8. Diluent also kept in the vaccine carrier	86.0	85.0
9. The dosage correct	98.2	94.0
10. Immunisation site correct	94.6	92.2
11. Immunisation technique correct	92.9	88.0
12. Number of syringes and needles adequate, in proportion to the required number of vaccinations to be given.	70.5	70.0
13. Separate syringe and needle used for each immunisation	73.0	75.6
14. Adequate number of frozen ice packs in vaccine carriers	79.1	72.7
15. Partially used vials discarded at the end of the session	87.0	83.1
16. Mothers properly informed about:		
-Purpose of immunisation	87.0	77.1
-Number of doses	94.0	88.8
-Right age for immunisation	86.2	80.8
-Possibility of side effects	88.6	78.5
-When to come back for next dose	93.1	90.4
-Safe keeping of immunisation card	82.8	74.4



## Disease Surveillance

Disease surveillance was another component of the programme examined during the review. By and large, the surveillance system was found to be poor in most States even through the sentinel centres. Problems related to poor training of staff involved, inadequate attention to record maintenance, insufficient attention to investigation of reported diseases or outbreaks were common in many States.

Special disease surveys for poliomyelitis and neonatal tetanus were conducted under the national review. In a total of 4,23,201 children below five years surveyed for lameness, 1,149 were found to be lame due to paralytic polio and after applying the correction factors for paralysis of upper limbs, migration and death the prevalence rate came to 4.5 per 1000 children below five years. Wide variation was seen in prevalence of lameness due to polio in different study districts ranging between 0.372 per 1000 in Dibrugarh in Assam and 14.5 per 1000 children under five years in Kanpur Dehat in U.P. (Table 14 and 15). One important observation was that about 20-30% of children suffering from poliomyelitis were reported to be immunised against polio.

**Table 14**

*Distribution of Districts/Urban Units According to Prevalence Rate of Paralytic Poliomyelitis*

Prevalence/1000 children under five years	No. of Districts
<1	6
2	6
3	8
4	2
5	5
5+	15
Data not available	1
Total districts/units	43

Table 15

*Distribution of Districts/Urban Units According to Prevalence  
Rate of Paralytic Poliomyelitis*

Prevalence rate of Polio	Number	Name of Districts
<1	6	Dibrugarh, North Goa, Shimla, Pune, Bombay A, Madras (South)
2	6	Nowgaon, Quilon, Kasargode, Bijapur, Nanded, Calcutta-II
3	8	Singhbhum, Rajkot, Bhiwani, Sambalpur, Murshidabad, Calcutta-II, Delhi (urban), Coimbatore
4	2	Mandla, Madras (North)
5	5	Cuddapah, Panchmahal, Patiala, Bombay-B, Delhi (rural)
5+	15	Tumkur, West Nimar, Sangrur, Katihar, Hissar, Badgam, Warangal, Anantnag, Bijapur, Ganjam, Bharatpur, Jhal- war, South Arcot, Meerut, Kanpur Dehat
Data not available	1	Burdwan

As regards neonatal tetanus mortality, in as many as 16 units studied the mortality rate was less than one per 1000 live births and in fact in eight units no case of neonatal tetanus was reported. The highest rate of 23.72 per 1000 live births was reported from Kanpur Dehat (Table 16 and 17).

Table 16

*Distribution of Districts/Urban Units According to NNT Mortality Rates*

NNT Mortality rate per 1000 Live Births	No. of Districts/Units
0	8
<1	10
1-2	5
2-3	3
3-5	5
5-10	8
10+	2
Data not available	2
Total	43



**Table 17***Distribution of Districts/Urban Units According to NNT Morality Rates*

NNT Mortality Rate per 1000 Live Births	Number	Name of Districts
0	8	North Goa, Quilon, Kasargode, Pune, Coimbatore, Calcutta-II, Madras North, Madras (South)
< 1	10	Warangal, Rajkot, Bijapur, Shimla, Tumkur, Mandla, Fatiala, Sangrur, Calcutta-I, Bombay-B
1-2	5	Cuddapah, Nowgaon, Bijapur, Delhi (urban), Delhi (rural)
2-3	3	Ganjam, Sambhalpur, South Arcot
3-5	5	Murshidabad, Bombay-A, Dibrugarh, Bhiwani, Hissar
5-10	8	Katihar, Singhbhum, Panchmahal, Anantnag, Badgam, West Nimar, Bharatpur, Meerut
10+	2	Jhalawar, Kanpur Dehat
Data not available	2	Burdwan, Nanded

Another important observation made during the review was the existing level of involvement of non-governmental agencies in the programme. While in some States they were participating actively in the programme, the need for expanding efforts for utilising this potential support in future was clearly brought out. Among the Governmental agencies also, need for expanding the role and involvement of the medical colleges, ICDS and Central Government agencies with better coordination for success of the programme was highlighted during the review.

In the light of various observations made during the review and considering the urgency of achieving the targets set for the programme, a number of recommendations have been made. While alongwith individual State Review Report, State specific recommendations have been given, in the national report recommendations of more general nature indicating action at national level are included. Details are shown in succeeding pages.

## PROBLEMS

### Policies

In spite of the fact that National Government is fully committed to the goal of providing immunisation to all the target population, within stipulated timeframe, it appears that the urgency of the programme is not understood at all levels of the health system. Consequently sense of commitment is lacking.

It would be pertinent to seek answer as to how the districts covered under UIP in various years in phased manner could reach the same coverage level by 1990 because districts included in the earlier period can be assumed to have the obvious advantage over those included later in terms of various resource inputs.

A major deficiency in terms of lack of clearcut policies regarding implementation of immunisation in urban areas was observed.

## RECOMMENDATIONS

### Policies

It may be considered worth while to request Prime Minister to address a communique to all Chief Ministers of States reiterating goals of UIP and seeking their full and wholehearted support. They may be further requested to assume responsibility to ensure that all pregnant women and eligible children in their States are protected.

It is recommended to reconsider the dates of achievements of the set goals.

Role of Panchayat vis-a-vis health programme should be redefined. More meaningful involvement of Panchayats will not only boost the programme but ensure universal coverage.

It is recommended that there should be clear policies related to implementation of immunisation programme in urban areas in terms of joint planning, resource allocation, demarcation of area/population responsibility between State health administration, urban local self-Government etc.

Instead of generalised approach to cover total urban area, it would be appropriate to identify priority areas based on load of disease, chances of transmission of diseases, poor living condition, poor sanitation and socio-economically handicapped areas for special efforts for complete coverage.



## **Sustainability**

The Immunisation Programme will have to be continued to maintain the coverage level of 22 million pregnant women and 18.5 million year after year. The States generally accept the programme so long as the 100% financial support from Central Government is available. As soon as this support is withdrawn the States find it difficult to bear the burden of the programme.

## **UIP as a Component of MCH Services**

UIP is viewed in isolation from other components of MCH services.

## **Programme Planning**

Though plans of action are prepared, generally they are target oriented, and percolate from top to bottom, hence these fail to generate enthusiastic responses from peripheral levels.

## **Sustainability**

Central Government, before suspending the 100% support, should ensure that the State Government are fully prepared to assume responsibility to run the programme on their own. In the absence of such preparedness it may not be a surprise to find that programme has been pushed to back seat.

## **UIP as a Component of MCH Services**

UIP needs to be developed as a part of larger MCH programme. The service for infants (contacts with health functionaries as well as support system) need to include measures for control of D-Diarrhoeal disease (DD), Acute respiratory infections (ARI), parasitic infections, anaemia and Vitamin A deficiency, etc. Similarly, for mothers, services should include measures for birth spacing, safe motherhood and control of anaemia. For this to be operationalised the technical MCH wings at national and State levels need to be considerably augmented.

## **Programme Planning**

It is recommended that micro-planning process should be initiated at subcentre and PHC levels in each district. This would help in mobilising resources, identifying and enumerating eligibles, organising ses-

## Strategy

While formulating operational strategies for immunisation, not much consideration is given to difficult areas or areas adversely affected by floods, landslide or adverse climatic factors and difficult terrain. Similarly, not much attention is given to the specific groups of population like tribals or migrants.

Generally, same operational strategy is followed for good performing and poorly performing districts.

sion and followup of dropouts. Involvement of grassroot level workers will make them responsible and accountable to achieve what they have planned. Sense of participation will also boost the morale of workers.

Advance scheduling of immunisation sessions on a fixed day which is publicly known to staff and community is important.

## Strategy

Alternative approaches to cover remote areas, difficult areas and special groups of population should be searched - these could include mobile teams, intensified campaigns etc. Area specific operational strategies should be determined in consultation with officials. Additional facilities for mobility during limited periods in which teams will be working should be provided. For flood affected or water-logged areas boat squads may be provided for running immunisation sessions. States should be given flexibility to decide on strategies suited to local situations.

Provision should be made for meeting the extra expenditure to be incurred for organising special campaigns, intensified drives, and special squads, so that the health budget of States is not affected.

Districts or regions performing poorly should be identified and intensified programme should be carried out in such districts with appro-



While allocating the area of work to the health personnel only population is taken into consideration which has its own drawbacks because of the low density of population and difficult terrain etc. in some States.

During coverage evaluation it was observed that in couple of districts children even below the age of three months had been affected with paralytic poliomyelitis.

It was reported that in some States immunisation sessions were not held on scheduled days or were cancelled often without prior intimation to the community. Credibility of functionaries get adversely affected in such situations.

priate measures to overcome the bottlenecks and hurdles.

It is recommended that while allocating the area to workers, population should not be the only criterion but socio-geographical and communication factors should also be taken into consideration, so that the workers are able to reach the beneficiaries.

It is recommended that in the event of such situation, immunisation for poliomyelitis should be taken immediately after the birth and completed before completion of three months of age. This will of course necessitate more contacts because poliomyelitis vaccination will have to be given separately and not alongwith the DPT. Government has therefore, taken policy decision to change immunisation schedule to initiate the same as early as possible i.e. OPV at birth, DPT and OPV at 6, 10 and 14 week. BCG is to be combined with any of these.

Immunisation session at all levels should be held on fixed day. It will help people to remember the due day for subsequent dose and reduce dropouts. Except for reasons beyond control, sessions should not be cancelled.

Stencils as in malaria indicating schedule of sessions at PHC should be an annual feature. This should be monitored in terms of number of sessions held (as percentage) against the scheduled.

Villages at a distance from subcentre are visited less frequently.

### **Organisation and Infrastructure**

The role relationship between the Mission on immunisation and DGHS at the central level in total immunisation programme is unclear particularly since all districts have been brought under UIP since beginning of 1989-90. Problems are likely to arise in relation to the following:

- i. Coverage and monitoring of booster doses for DPT and Polio vaccines.
- ii. Coverage with complete immunisation for those children who could not be protected under one year of age.
- iii. Immunisation of older group of children for DT, TT etc.

Health facilities have expanded but not become fully operational in many States for want of staff, equipment etc.

Reasons for not holding sessions should be enquired into, so that action can be initiated (Panchayat should be made responsible for doing this).

In villages at a distance from subcentre, MPW(M) should be assigned the responsibility to give vaccination on fixed day at fixed place, as far as possible, e.g. Anganwadi or place identified by HG for holding the sessions.

### **Organisation and Infrastructure**

At the central level there is need to specify the roles and inter-relationship of the EPI Wing of the DGHS and the Immunisation Mission in the Ministry of Health and Family Welfare mainly concerned with UIP. This is particularly important since the immunisation programme is a continued programme which is to be sustained for many more years.

Being technical programme, technical support at centre should be strengthened.

Norms for supply should be revised for institutions including new PHCs and urban institutions. State government should ensure adequate staff, transport facilities and equipments including cold chain equipments and other supplies for im-



Posts of Cold Chain Officer, DIO, Refrigerator Mechanics, Statistical Assistants and Drivers were found to be vacant in many States. In couple of States these positions had not yet been created.

Similarly, large number of posts of Medical Officers, Health assistant (F), MPW (F) are lying vacant. In some States the vacancies are more than 30%.

At PHC even when accommodation is available and all other facilities exist, MOs and other staff stay outside the area and commute everyday from their residence to place of work. Such practices are totally unjustified.

Lack of motivation with no sense of commitment and gradually increasing culture of no work among health manpower was reported from

munisation. Areas of newly created PHC should be demarcated and subcentre should be attached to these health centres. In this regard, measures initiated at Central Government level need to be specially implemented.

Posts of Cold Chain Officer, DIO, Refrigerator Mechanics and Drivers should be filled up without delay. Wherever posts have not been sanctioned the steps should be taken to create and fill these up.

It is also recommended that job responsibilities of these categories of staff be defined so that they function effectively.

DIOs should not be part-time officials and adequate administrative authority should be given to them.

Vacant posts of medical officers, HA(F) and MPW(F) should be immediately filled as they are the key functionaries, not only for immunisation but also for providing health care with special focus on mothers and children.

Such situation should be seriously viewed. Effort to study reasons for such practices be made and prompt action be taken to prevent such situations.

Minor but easily soluble personnel management issues like delay in payment of salary, TA/DA, sanctioning of leave etc. should be immedi-

every State and district under review.

Though posts of DIO have been created and many have been posted, yet most of them do not have adequate administrative or financial powers. For everything they have to depend upon CMO. Therefore, they find themselves to be ineffective or not able to get desired results. Moreover in the absence of administrative authority the DIOs felt uneasy about their relationship with MOs of PHCs.

In some States, medical officers who are working as clinical paediatricians in hospitals have been assigned responsibility of DIOs. Consequently with load of clinical work, they are not able to do any justice to immunisation programme.

Frequent transfers and large scale turnover particularly of trained staff poses another serious problem to successful implementation of the programme.

ately looked into and sorted out. Awards, appreciation and recognition of good work should go a long way in boosting the morale of workers/staff. As a long-term measure, serious efforts should be made for human resource development through a well defined national manpower development policy including opportunities for career development and continuing education.

Any responsibility without authority makes a bad manager. Therefore to make them more effective, their specific roles, administrative authorities, and financial relationship with other officials need to be clearly spelt out.

The tendency of officers holding additional charges of immunisation should be discouraged as far as possible.

Posting of medical officers working as clinical paediatricians in hospitals as DIO should be discontinued. Wherever such arrangements exist, they should be remedied by posting full time DIO.

Only under very exceptional circumstances the staff should be transferred. Moreover the trained staff should be allowed to continue to work for a reasonable time, so as to reap the benefits of their training. However, it is important to orient everyone as far as possible through massive training.



In some States, the areas/zones in the districts have been allocated to district officials on geographical basis for supervision of all health programmes. Even with such arrangements officers continue to be identified as individual programme officer, and many tend to lay more stress on their own programme and pay less stress on others during supervision and monitoring. Creation of the post of DIOs, however brings in the concept of verticality and make his role ambiguous under such circumstances.

The HG and AWW were to play key role as agent for change and assist in providing services. In pursuance to Government of India's decision that only females may be employed as HG, the institution of HG has become more or less non-operative in many States.

### Supplies

System of supply of vaccines by push system without taking into consideration the actual quantity of vaccine consumed and the stock available at State or district headquarters has resulted in excess stock of vaccines in a few places.

It is accepted generally that the most effective organisational set up at the district would be where the implementation of different programmes can be undertaken in an integrated manner based on area wide responsibilities rather than on vertical programme basis. Therefore instead of labelling officers as specific programme officer, they should be identified as area officers and held responsible to look after all activities in their allocated area. Working in a small area will not only ensure better supervision but will also reduce the burden of medical officer of PHC to be answerable to several programme officers.

The State may be clearly informed about the decision regarding continuance of the HG scheme and if it is to be continued it should be seen that it is carried out both in letter and spirit. It will also be necessary to reconsider the amount of honorarium paid to HG.

### Supplies

Vaccine should be supplied only on monthly basis instead of quarterly. This is important because if for any reason one batch of vaccine is found unsatisfactory, only small quantity of vaccine would be required to be destroyed. Utilisation of vaccine should also be taken into account while deciding quantities to be supplied. Supplies should be made by indenting system instead of



Cold chain equipment and other supplies related to immunisation programme were found in short supply in many places either due to delay in despatch or failure in distribution by the State to districts and from district to other peripheral institutions.

The workers were found to use thermocole boxes to carry vaccines in the field. They prefer to use them because they are lighter in weight and easy to carry. However, they are not adequate because ice melts very soon in such boxes, hence, it is difficult to maintain appropriate temperature.

In some districts electric supply is very erratic. Some times power is not available for number of days. In some areas there is no electric supply.

In areas like Leh, Kargil, Lahaul and Spiti where temperature goes below 0°C. 'T' group of vaccines gets frozen.

### **Cold Chain Maintenance**

During transit, many a time either due to delay/cancellation of flights or delay in receipt of information about despatch of vaccine, number of days elapse between date of despatch and actual receipt of vaccine by consignee. Many airports at holding or consignees end have no cold storage facility. Consequently optimal temperature for keeping vaccine

push system.

Apart from ensuring availability of adequate quantum of supplies at district level, special care needs to be taken to arrange for proper and timely distribution of the same to the peripheral institutions upto the subcentre level.

Thermocole boxes used by MPW should be withdrawn. They should be compelled to use either vaccine carrier or day carrier with required number of frozen ice packs. This is necessary to ensure safe transit of vaccines from PHC to subcentre and outreach villages.

Feasibility of supplying solar refrigerator or kerosene/battery operated refrigerator be explored for areas where there is no power, or electric supply is very erratic.

In areas like Leh, Kargil, Lahaul and Spiti where temperature goes much below 0°C, equipment to protect 'T' group of vaccines from extreme cold should be provided.

### **Cold Chain Maintenance**

At all airports particularly at Calcutta and in North-Eastern sector cold chain facilities should be immediately provided so that in event of delay, vaccine can be stored under optimal temperature. Specific strategy for supply of vaccine to North-Eastern States should be evolved, so that vaccine reaches in time and safely.



safe is not maintained.

Gradually number of private practitioners involved in giving immunisation to their clients is multiplying. Large number of them purchase vaccines from chemists and druggists shop.

### **Monitoring of Vaccine Quality**

Number of samples lifted from most of the States were grossly inadequate. In the absence of laboratory facilities within the State, it was found too cumbersome to send vaccines through couriers from every district to the allocated laboratory. There was significant time lag between despatch of sample and receipt of results.

After collection of sample, the remaining vaccine is generally being consumed without waiting for results. There is no mechanism to reach those children who have already been immunised with the batch of vaccine which was later found to be unsatisfactory.

It should be ensured that shopkeepers who sell vaccines keep them in optimal conditions. Drug inspectors should periodically inspect the facilities available for keeping vaccines and should regularly get samples of vaccine tested for potency.

An orientation programme for private practitioners and chemists and druggists may be organised to familiarise them regarding requirements for maintenance of cold chain.

### **Monitoring of Vaccine Quality**

To ensure the quality of vaccine clear cut instructions should be issued for lifting the minimum number of samples at different levels in each State. Facilities should be provided in each State for testing the OPV so as to avoid problem in sending them and preventing time lag. Number of laboratories should also be increased in phased manner.

Coloured monitors should be standardised for checking quality of vaccine. This will reduce the requirement of vaccine samples being sent for potency test.

Nearly 30-40% of OPV samples have been found unsatisfactory. Therefore utilisation of vaccine should be cycled in such a way that no incoming vaccine is utilised before its potency has been tested. It should be arranged that results are available within a fortnight. If

Officials from national level to district level during their visits have found vaccine being kept at temperatures detrimental to quality of vaccine. Sometimes vaccine has been found to be kept in unsatisfactory conditions for number of days. Yet, generally excepting censuring the defaulting officials no one issues instructions not to use such vaccine or see that it is destroyed in their presence. Such a compromising attitude raises questions about validity of maintenance of temperature.

Many a times it has been observed that opened/used vials are reused both in government institutions and by private practitioners.

## Training

There is a backlog in training of personnel at all levels.

samples of vaccine are found unsatisfactory, whole lot should be destroyed. This will obviate the chances of vaccinating children with unsatisfactory vaccine.

Whenever a vaccine is found to be kept improperly or not under optimal temperatures, visiting officials should immediately disallow the use of vaccine, and get it destroyed. Alternatively samples from such lot should be got examined before allowing use of such vaccine. Defaulting officials should be held responsible for such neglect.

Fact of such observations and actions should be widely circulated so as to keep others alert. Such matters may be released to press, it will increase the credibility of programme and sincerity of efforts for giving good quality of vaccines.

It is recommended that manufacturers should be persuaded to manufacture small dose vials preferably single dose. If it is not feasible no vial should be of more than five doses. Manufacturing single dose vials may be expensive, but in long run it will be cost effective for two reasons:

1. It will prevent wastage.
2. It will ensure that no child is vaccinated from open or used vials.

## Training

Training programme should be accelerated to meet requirement of



Assessment of knowledge and skills among workers indicated inadequacies which may be due to inadequacy of training or lack of updating of knowledge.

In training provided to different categories of workers, component related to IEC for demand generation is missing.

Middle level managers and PHC doctors have to play role of trainers. Training imparted to them at national level does not prepare them as trainers.

Training requires a team of trainers. This concept has not been appreciated and no provision exists to train team of trainers.

DIO and MO (PHC) have to attend various administrative, responsibilities, and field supervision. Besides, MO (PHCs) are also involved in clinical work. It is therefore difficult for them to find adequate time for organising or imparting training to health personnel.

training to update the backlog as well as to train personnel in the new districts taken up for UIP. All MOs (and not only the MO I/C) at PHCs are to be trained as per the new policy.

Refresher training courses of short duration may be organised to update knowledge and skills of the workers. Monthly meeting provides opportunity for this.

The component of IEC should be incorporated in the training schedule of different category of health personnel with special emphasis on communication skills.

At national level instead of training of middle level managers it would be appropriate to train a team of trainers drawn from each State. A team may consist of teachers from medical colleges, HFWTCs, nursing colleges and health administrators etc. The State level team will be responsible for training of middle level managers and medical officers of PHCs in the State.

Till such decisions on team training is taken, there is need to incorporate 'Training Component' in the existing DIO's training curriculum.

It is recommended that a district training team may be formed comprising of a senior medical officer, block extension educator and senior paramedical assistant drawn from various programmes. Member of district training team can also be trained by the State level team.

District training team will be re-

Doctors working in district hospitals, post partum centres and various health organisations in urban areas are not being trained.

### **Supervision**

Supervision at all levels is one of the most neglected management functions. Supervisory visits are generally unplanned and unscheduled, without making any reports of the visit or informing the PHC/subcentre area where improvement is needed. No effort is made to ensure

sponsible for training of all para-professionals for both orientation training to new entrants and refresher courses.

Teaching aids including audio-visuals in local languages may be provided to State and district training teams.

It will be appropriate to develop curriculum for trainers at national level. Curriculum should incorporate the requirement of training of different levels of functionaries. State and district teams should have the freedom to modify them according to their needs. Funds may be provided to get them locally printed and distributed.

Training inputs under Nursing schools, paramedical training institutions and ANM schools be strengthened.

Crash courses for medical officers working in district hospitals, post partum centres in Central Government institutions, private sector and public sector organisations and private practitioners should also be organised.

### **Supervision**

Schedules for supervision should be developed well in advance and adhered to.

Observation made during supervisory visits should be recorded and problem identified should be solved either locally or recommended to higher authorities. Feed-



that lacunae or deficiencies observed on earlier visit, have been corrected.

Supervisory checklists are not routinely used.

First level supervisory staff (HA) are not being routinely supervised.

Transport facilities are not available for enabling mobility of supervisory staff.

Delay in payment of TA/DA is reported to be a major deterrent in carrying out supervisory visits.

back should be obtained for action taken or suggestions made during visits.

A checklist for supervision should be used.

Immunisation sessions held at different levels should invariably be supervised during supervisory visits.

Non-availability of transport is not a valid, excuse for cancellation of visits. Alternate means of transport should be used and TA claimed.

It should be ensured that TA/DA is regularly paid so that it may not be used as an excuse for cancellation of visits.

Complaints or difficulties brought out by the staff during visit should not be brushed aside. Honest efforts should be made to find reasonable solution. This will prevent frustration and demoralisation of the workers.

The first level supervisory staff (HA) should also be supervised and guided.

## **Monitoring**

Monitoring is generally limited to reviewing monthly reports and comparing achievement against targets. Generally no effort is made to find out the utilisation of vaccine vis-a-vis number of immunisations per-

## **Monitoring**

In meeting held at State, district and PHC level, monitoring should not be related to find out target achievement only but all related issues should be discussed. For example number of immunisations

formed. Even at district level in review committee chaired by district collectors, emphasis is mostly on target achievement only. Generally no enquiry is made about occurrence of VPD or any untoward reaction after vaccination.

given against number of beneficiaries enlisted, utilisation of doses of vaccine against number of immunisations given, percentage of children below one year of age protected against vaccine preventable diseases, adverse reactions and occurrence of vaccine preventable disease and regularity of scheduled immunisation sessions etc.

System of allocating targets and measuring performance by target achievements should be totally stopped.

Unit of assessment for progress should be village in rural areas and ward in urban areas. List of eligibles village-wise should be obtained and coverage be checked. This will help to assess the extent of variation of performance in different areas and help to remodel the approach.

Monitoring checklist be prepared and used.

At national level Director of Immunisation Mission conducts periodic meetings of State EPI Officers which are found to be very useful. However, these State EPI Officers are not final decision makers. Therefore, it is suggested that during such meetings, Directors of health services may also be invited at least once or twice in a year.

## **Records and Reports**

Maintenance of records is one of the most neglected areas. Though

## **Records and Reports**

Registers and reports should be scrutinised for the completeness,



registers are maintained, they are generally incomplete and not updated. Likewise reports are incomplete and it is generally found difficult to rely upon them. There is a tendency to over-report performance and under-report untoward reactions.

Registers and reports are generally not thoroughly scrutinised and discussed during supervisory visits or review meetings. Consequently workers get away with the impression that this exercise is of no significance.

Since Health Workers are involved in various health activities, they have to prepare number of reports which takes away significant portion of their time. It is further observed that the formats of reports are also changed frequently.

correctness and updatedness.

Immunisation card is to be used as a home-based record.

Scrutiny should be made for registration and enumeration of beneficiaries and should be tallied with estimates and number protected and action taken for reduction of dropout should be verified. If wide gaps are observed, cause should be looked for and worker explained. Need for completeness should be repeatedly emphasised.

Standardised registers, report forms and sufficient stationery should be provided at all levels. Formats of registers and reports should not be frequently changed. Minimum number of reports which are to be really used should be asked for. A comprehensive report for all activities will facilitate the grassroot worker. Only monthly reports should be obtained from subcentres, PHC and district.

System of quarterly or annual reports should be suspended at these levels. On the contrary all reports should be collated and analysed by higher authorities and the reporting agencies should be fed back with results of the analysis so as to enable them to improve their performance.

## **Programme Evaluation**

From time to time coverage evaluation is being conducted by independent agencies. However, it is found that it is not generally repeated in the same district and therefore the change in performance is not assessed.

## **Disease Surveillance**

It was found to be one of the weakest links in the programme and the following constraints were noticed:

- Sentinel centres have been identified, but many have not become operational.
- Staff at sentinel centres have not been adequately trained.
- Records about VPD are not maintained by age, sex, residence and immunisation status etc.
- Sentinel centres are generally not involved in investigation of outbreak of cases.
- Records of untoward reactions following immunisation except death are not maintained properly.

## **Programme Evaluation**

To assess the improvement or otherwise in performance, coverage evaluation should be repeated in at least 25% of districts after a defined period of time. District authorities should on their own, conduct evaluation to find out the extent of coverage in their district at least once a year.

It is further recommended that such evaluation surveys should also incorporate operational/managerial aspects of the programme. These surveys will be useful only if sincere efforts are made to take remedial actions.

## **Disease Surveillance**

All sub divisional, district and teaching hospitals identified as sentinel centres should be charged with the responsibility of recording and reporting all VPD cases. Different categories of staff like child specialist, epidemiologist and medical record technician/officer should be trained to diagnose VPD at the earliest and maintain all the records according to age, sex, residential address and immunisation status. All VPD cases should be reported by sentinel centres to district administration and State authorities for appropriate action.

Monthly meeting between sentinel centres and administration should be held to review the VPD



Special survey for finding out disease load or active surveillance are not adequately carried out.

There is no periodic review of VPD cases and such cases are generally not investigated.

cases and to take appropriate action.

In addition to coverage evaluation surveys, UNICEF and Government of India may consider assisting medical colleges in carrying out annual disease surveys using neonatal tetanus and polio as indicators, particularly in areas with very high percentage of coverage.

Pictures of VPD cases with major signs and symptoms may be displayed at prominent places and people requested to report to the nearest health facility if they have come across such cases. All such reported cases be investigated.

Similarly, all neonatal deaths should be investigated by the officer incharge of health facility.

To strengthen disease surveillance system it is imperative that the disease situation uncovered through surveys should result in some action.

Practitioners of ISM, or dispensaries of ISM, and registered medical practitioners treat fairly large segment of population including children. Their involvement in reporting vaccine preventable disease should be seriously considered. They may be provided with prepaid postcards to be mailed giving details of VPD cases whenever they may come across in their clinic. Reports provided by them should not only be acknowledged, but they

About 20-30% of children suffering from paralytic poliomyelitis were reported to be fully immunised.

Cases of provocative paralytic poliomyelitis have been reported after receiving some injections or even DPT during fever.

sults of investigation and action taken.

It is important that all adverse reactions and deaths be thoroughly investigated, public educated about them and suitably compensated.

All such incidence should be thoroughly investigated and results reported. Public should be taken into confidence and without fear the results should be communicated.

Low grade pyrexia is an important clinical symptom in pre-paralytic poliomyelitis. Therefore, to avoid risk of inducing provocative poliomyelitis, low grade fever should be considered as a contraindication for giving DPT immunisation.

### Information, Education and Communication

IEC cells/media divisions have been created at each State HQ/district HQ under family welfare programme. However, following bottlenecks were observed:

Inadequate number of positions of IEC personnel at all levels.

Lack of trained manpower at different levels.

Lack of transport facilities.

Lack of funds resulting in inability to produce or procure IEC material in adequate quantity so that it may reach every nook and corner of State.

IEC staff is not fully conversant

IEC cells should be strengthened by increasing number of positions and posting trained persons. IEC is a very specialised job involving team work and requiring experts for media, for preparation of publicity and educational material and communication. Hence, providing a single functionary without sufficient back up will not be sufficient to create any effect.

Emphasis has been in the past more on health education. Now it should be given with more stress on



with UIP, hence, they find themselves inadequate to produce material suited for the programme.

Lack of coordination between State Health Education Bureau (SHEB) and media divisions has led to the two to be working independently of each other.

Inadequate supply of hardware and education material related to IEC was noticed. In many States 16 mm projectors and public address systems are not working and have been condemned. Replacement has not been made.

Even though awareness regarding the programme is gradually building up, people are not strongly motivated to come forward for services on their own.

demand generation.

Personnel in IEC should be trained in programmes related to child survival including UIP.

Adequate funds should be provided for procuring and producing educational materials according to needs of State.

State Health Education Bureau and Media Divisions should coordinate their activities. This will avoid duplication of efforts and maximise the utilisation of resources.

Efforts to develop communication skills among health personnel at all levels is most essential and therefore, be incorporated in all training activities.

IEC material should be synchronised with training material.

Direct communication between Directorate and PHC to be established (intra-organisational) particularly regarding change in policy etc.

They should also be provided with easy to carry education material. Linkages should be established with literacy mission. Dissemination of knowledge on health related subjects including immunisation should be included in adult education programme. Community Need Assessment (CNA) surveys should be carried out particularly in special groups of population, so that programmes for education for these groups may be more realistic.

16 mm projector and other audiovisual equipments which have been condemned should be replaced and more supply should be ensured according to the needs of State.

Since person to person communication has been found to be more effective, every opportunity for inter-personal communication should be utilised for dissemination of knowledge and to motivate people to use service.

### **Linkage**

Though within the health sector, different agencies are involved in the Immunisation Programme, effective functional linkage among them was not established to the desired extent.

### **Linkage**

It is recommended that linkages within the health sector among different components need to be strengthened. Within health sector, different agencies/bodies need to be involved with proper coordination in terms of joint planning and sharing of targets, area responsibilities and resources e.g. State and Central Government health agencies, ESI Corporation, Railways, Armed Forces etc. Effective linkages need to be developed with different public sector undertakings and voluntary organisations also.

### **Medical Colleges**

Even though from the initiation of UIP, medical colleges were expected to play a very significant role in the programme, in many States there seemed to be certain degree of ambiguity in terms of area responsi-

### **Medical Colleges**

Since medical colleges in many States do not come under health administration, linkages are not established between health department and medical colleges. It is, therefore, recommended that clear cut



bilities, distribution of targets and resources and coordination and supervision between State/district administration and medical colleges. Funds to medical colleges had not been released by State Governments.

### **Private Practitioners**

The opportunities for involvement of private practitioners have not been fully exploited.

It was found that administration was hesitant to supply vaccines and other supplies to them.

policy should be laid down and money and material should be provided directly to the medical colleges and they should be accountable for the performance in the areas under their coverage.

Medical colleges should also demonstrate well organised Immunisation Programme by way of better surveillance, coverage evaluation survey and training etc. in their field practice areas.

### **Private Practitioners**

It is, therefore, suggested that private practitioner's support in UIP should be maximised by quarterly meetings to discuss various aspects of the programme and Government's approach for child survival including immunisation. During these meetings VPD cases reported in the quarter may also be discussed.

Private practitioners should be supplied with vaccine irrespective of the fact that they charge fee for service. It should not be forgotten that the cost of vaccine is not more than 1/10th the cost of total time and effort put in by private practitioners. This will spare Government functionary's time for involvement in UIP for better contribution in other areas.

Printed forms and cards may be supplied for maintaining records and reports.

## Professional Bodies

Professional bodies have not assumed responsibility in the Immunisation Programme to the desired level.

## Others

Generally, at time of outbreaks of measles cases, health authorities resort to mass immunisation in and around the areas from where outbreaks are reported. Measles is infectious during incubation period, therefore, long before signs and symptoms appear and health department swings into action, large number of children have been infected and may be in later stage of incubation period.

## Professional Bodies

Support from professional bodies like State branches of IMA, Association of Paediatricians, Association of Obstetricians and Gynaecologists and Tuberculosis Association etc. should be taken in mobilising their members to accept responsibility in a national programme of such vital importance.

Distribution of vaccine to private practitioners can be channelised through these bodies under the guidance of State UIP Officers.

Their help can be sought in organising special drives, or spreading the message through popular talks in educational institutions.

## Others

Keeping in view of the epidemiological features of disease, the validity of resorting to mass immunisation during measles outbreaks should be thoroughly examined and clear cut instructions issued with regard to action to be taken during such situations.



# **REPORT**





## Introduction

The Government of India through its National Health Policy has expressed its major concern for improving the health of women and children. The National Immunisation Programme being implemented in this country is one such endeavour, which has been accepted as a priority programme in this direction. Since 1978, the efforts have been mainly concentrated on protecting more and more of the beneficiary population through the Expanded Programme on Immunisation (EPI). For achieving this, various policy changes as well as alternative operational strategies have been tried out. Currently, with the world-wide emphasis on enhancement of child survival programmes and schemes, the Immunisation Programme has attained still higher priority. Dedicated to the memory of the late Prime Minister Smt. Indira Gandhi, the Universal Immunisation Programme (UIP) was launched in 1985 with accelerated efforts for universal coverage of immunisation of young children. The anxiety of the Government to generate a sense of urgency and commitment towards achieving the stated programme goals can be appreciated from the fact that this programme has found a place, in the name of "Technology Mission on Vaccination and Immunisation of the vulnerable population, specially children", among the seven Technology Missions taken up on priority basis by the Government of India.

It is imperative that programmes of this nature which are implemented with clear objectives and specific time-bound goals and targets, be systematically reviewed to examine whether the programme has been effective in achieving the set goals. As an important means for assessing the programme achievements, a large number of coverage evaluation surveys have been conducted in different parts of the country which have shown varying extent of coverage of the beneficiary population. Such achievements though encouraging, have indicated that much needs to be achieved for reaching the stated goals. However, output of a programme by way of programme performance achievement alone will not suffice to enable programme administrators to effectively and efficiently manage the programme. For this, detailed review of the programme, with scope broad enough to include various managerial facets of the programme, is essential. Thus, it requires a close examination of the policies related to the programme, the relevance and feasibility of its



targets, the adequacy and appropriateness of the programme planning procedures and the plan itself. Further, the operational strategies adopted and the implementation processes, with particular reference to qualitative aspects of the programme and results in terms of actual immunisation coverage achieved, and, ultimately, the programme's impact on the magnitude of the problem of vaccine preventable diseases, also need to be looked into. Such indepth reviews would also enable the reviewers to understand the strengths and weaknesses of the programme which, in turn, can help in bringing about improvements in the programme.

It is in this context that the Ministry of Health and Family Welfare decided to undertake a National Review of the Immunisation Programme at the end of about a decade of its implementation.

It is important to appreciate that in a vast country like India, with diversities in population characteristics, cultural features and socio-administrative milieu, no single solution for improving the programme is likely to emerge after such a review. There is need to view the States as independent units and, thus, the scope of the review would naturally be widened to cover the maximum number of States in the country.

The Ministry of Health and Family Welfare identified the National Institute of Health and Family Welfare as the nodal institution and entrusted it with the responsibility of coordination of this massive effort.

## OBJECTIVES

1. To review the policies, strategies and plans of action for the EPI/UIP at different levels of health administration i.e. Central, State and district levels.
2. To measure the progress in implementation of the EPI/UIP in relation to targets for acceleration of the programme accessibility, coverage, and mortality/morbidity reduction.
3. To identify the bottlenecks and constraints in the progress of the Immunisation Programme at different levels of programme implementation.
4. To make recommendations for overcoming the constraints and problems and thereby improving the implementation of the programme qualitatively and quantitatively, as well as for assessment of additional resources required for this purpose.

## METHODOLOGY

### Study Area

Because of the inter-state variations likely to exist in terms of programme policies, strategies, achievements, managerial issues and, consequently, related solutions, 'the State' was considered as a study unit in this review. Thus, all the 25



States were covered during this review. In addition, for obtaining information on similar aspects related to the programme in urban areas, four major urban metropolitan areas viz. Madras, Bombay, Calcutta and Delhi were also included in the review. Thus, the total number of units studied was 29 i.e. 18 major States, seven small North-Eastern States and four urban metropolitan areas.

Four main aspects of the programme received emphasis in this review viz.

- i. The programme inputs like policies, plans, resources etc.
- ii. The details of processes of implementation, including operational strategies, management of various resources, other programme management aspects like monitoring, supervision, information system, etc.
- iii. Programme output in terms of actual performance and extent of coverage of the beneficiary population.
- iv. The programme impact in terms of disease occurrence with reference to specific vaccine preventable diseases.

## METHODS OF DATA COLLECTION

- i. Interviews/discussions with programme officials and staff at Central, State, District, Primary Health Centre (PHC), subcentre and village levels.
- ii. Study of records, reports, guidelines, instructions and other relevant documents.
- iii. Observation of immunisation activities, service premises, cold chain maintenance, etc.
- iv. Vaccination coverage survey using the 30 clusters sampling method among children aged 12-23 months and for pregnant women.
- v. Conducting disease survey for lameness and neonatal tetanus.
- vi. Interview with community members, leaders and representatives of non-governmental agencies.

## SAMPLING PROCEDURE

### i. For 18 Major States

From each major State, the Immunisation Programme operations and procedures were studied at the State headquarters and in two selected districts from the State. Immunisation coverage and disease surveys (lameness and neonatal tetanus) were conducted in these two districts.

### Selection of Study Districts

For the purpose of selection, in each State, the total districts covered under UIP were grouped into two categories viz. i. those which were included under UIP



during 1985-87; and ii. those covered during 1987-88.

From each group, one district each was chosen using the probability proportional to population size sampling (PPS). The list of districts covered within each State is shown in Appendix I.

In each district, apart from coverage evaluation, operational details of the programme were studied in selected PHCs, subcentres, urban health facilities and cluster villages/ localities.

## **ii. For Seven Small North-Eastern States**

Operational details of the Immunisation Programme were studied separately from each State headquarters and at least in one district and sub-units viz. PHCs, subcentres, urban institutions, etc. within this district, in each State. For Immunisation Coverage Evaluation, all seven States were combined together as one unit, in which the districts covered by UIP in 1985-87 and 1987-88 were grouped separately and from these groups, 30 clusters each were selected and studied.

## **iii. For Urban Metropolitan Areas**

Since urban metropolitan areas are not divided into districts as in the States, the units equivalent to districts were identified in the four metropolitan areas as follows:

- a. Delhi            The total area of Delhi was divided arbitrarily into two zones i.e. Rural and Urban, and 30 clusters each were selected from the two zones.
- b. Madras        The total area was divided into two zones i.e. North and South, and 30 clusters each were selected from the two zones.
- c. Calcutta      The total number of 100 urban wards were divided into two groups, 1-50 and 51-100, and 30 clusters each were selected from the two groups.
- d. Bombay       The total of four zones in Bombay were grouped into two i.e. 1+2 and 3+4, and 30 clusters each were selected from the two groups.

Apart from discussions with the programme officials in each district/State, the following were also studied:

- i. Selected urban health institutions functioning in the area of the urban clusters.
- ii. Medical college located in the district headquarters, if any.
- iii. Selected private practitioners.
- iv. Any Government institution run by agencies other than the State Government like Central Government Health Services (CGHS), Employees' State Insurance Corporation (ESIC), Railways, Armed Forces, etc.
- v. Sentinel centres in the district/State headquarters.
- vi. Popular leaders identified from the cluster areas.



- vii. Anganwadi workers/health guides serving the cluster area.
- viii. The paramedical supervisory staff related to the cluster area.
- ix. Missed opportunity for immunisation in institutions from the selected study areas.

The total volume of work covered during the review is indicated in Appendix II.

## MANPOWER INVOLVED

In order to collect information about various facets of the programme from 29 units (as indicated above), 29 expert teams were identified whose members included faculty from medical colleges and public health experts from various organisations. Each team consisted of a team convenor, three supervisors and team members whose numbers varied between 15 and 20. The names of the Team Convenors are shown in Appendix III.

A team of 20-30 paramedical personnel of the rank of Health Supervisors were deputed for each district for carrying out lameness and neonatal tetanus survey under the supervision of district team members. In order to ensure independent appraisal of the programme, officers and paramedical staff were selected from neighbouring States/districts.

## OPERATIONAL DETAILS

In order to advise the Coordinators at NIHFW at various stages of the preparation of the project proposal and its implementation, a *Task Force Group* was constituted with representatives from the Ministry of Health and Family Welfare, ICMR, WHO, UNICEF and the Planning Commission as members. The list of members of the Task Force Group is shown in Appendix IV.

In order to assist the coordinators in the implementation of the review project, including preparation of data collection tools and in deciding an operational strategy, a *Planning and Implementation Group* was constituted with faculty from NIHFW, representatives from WHO, UNICEF and experts in the Immunisation Programme from other institutions as its members. The list of members of the Planning and Implementation Group is indicated in Appendix V.

In order to familiarise the State Health Officials with the details regarding the objectives and methodology of the review and also to seek their support and cooperation, a meeting was organised at NIHFW, New Delhi, on 6 and 7 April, 1989, for State Directors of Health Services and State EPI Officers.

A briefing for the 29 team convenors who were to coordinate the total review in each State was arranged at NIHFW, New Delhi, on 16, 17, 18 April, 1989, and the operational details, including study tools, were discussed in detail.

Before the actual start of the field survey, detailed briefing sessions were



conducted by the Team Convenors at State Headquarters, one for State level supervisors and the other for district team members regarding the methodology and collection of data from various agencies for the National Review.

Briefing of paramedical staff of the level of Health Supervisors for carrying out lameness and neonatal tetanus survey was carried out at the district headquarters by the respective State level supervisors.

At the end of the data collection, which lasted for about 2-3 weeks, the reports for the selected study districts and the State were prepared by the team and the same were discussed with the State officials for necessary clarifications. Based on the findings from the different study units, at NIHFW, a national level report was prepared.

Apart from the routine data collection in the 29 study units by expert teams, in order to give a deeper look at the programme to examine its status and role in the context of national goals of health for all by 2000 A.D. to be achieved through the primary health care approach, a team of five experts was involved in conducting an indepth study in selected States/districts. The main emphasis in this study was on immunisation as a component of primary health care, perception about the programme among community and health functionaries, social mobilisation efforts, innovative experiences, if any, etc.

In addition, a separate cost study of the programme was also undertaken in two districts, one from Maharashtra and the other from Madhya Pradesh by a special team. The report of the cost study is being submitted separately.



## Organisational Structure and Programme Delivery System

There are 25 States and 6 Union Territories (UTs) in the country. According to the Constitution of India, health is a State subject and, therefore, planning and implementation of health programmes and provision of all health care services is the State's responsibility. In Union Territories, various programmes and services are Centrally administered. However, even in the major States, some of the national health programmes and schemes are centrally sponsored for which entire planning along with resource provision in varying degrees is the Central Government's responsibility. The Immunisation Programme, being one of the important components of the national family welfare programme, is also a Centrally sponsored programme. The three major divisions of health administration at the Centre and in every State are:

- a. the political leadership responsible for policy decisions under the Ministry of Health and Family Welfare;
- b. the executive leadership under the Health Secretary; and
- c. the technical leadership under the Director General/ Director Health Services supported by their respective subordinate divisions/officials.

Even though immunisation as a service was being given as a component of Maternal and Child Health (MCH) care in the past, special emphasis on this service, with a separate and exclusive programme, was accomplished in 1978, when the Expanded Programme on Immunisation (EPI) was initiated in India. The main objective of the programme was to reduce morbidity and mortality due to six vaccine preventable diseases (VPD) by providing immunisation services to the eligible population. The programme also aimed at achieving self-sufficiency in the production of vaccines required for the programme. Tetanus Toxoid (TT) Immunisation initiated for pregnant mothers in 1975-76, was subsequently integrated with EPI in 1978. Immunisation against polio was included in EPI in 1979-80 (though, initially, in selected urban areas and under the ICDS programme only, it was later integrated, in 1982) and TT for school children was included in 1980-81. BCG was brought under the purview of EPI during 1981-82. Immunisation against measles was initiated under EPI in 1985-86.



The Universal Immunisation Programme (UIP) was launched on 19 November, 1985, to accelerate the immunisation coverage of the eligible population and to ensure betterment of logistics and managerial aspects. Though initially only those districts which had a potential to achieve the programme targets of universal coverage ahead of schedule were included in the UIP, it was to be extended in a systematic manner to cover all the districts in a phased manner by 1989-90, as given below:

**Table I**  
*Year-wise Phasing of Districts to be Taken up for UIP*

Year	No. of Districts taken for UIP
1985	30
1986	62
1987	90
1988	120
1989	137
<b>TOTAL</b>	<b>439</b>

The UIP targets are to cover 85% of eligible children and 100% of the pregnant women by 1990. One could see that over a period, considering the epidemiological features and the priority needs, there has been a shift in focus towards infants rather than children under five years or under two years, unlike earlier.

Realising the tremendous impact this programme can have on the enhancement of child survival, it has been recently included as an integral part of one of the Technology Missions of the Government of India. The National Immunisation Mission is, thus, a joint responsibility of the Ministry of Health and Family Welfare and the Department of Biotechnology. Under the Mission, the responsibilities have been divided between the two Ministries/departments as follows:

#### Under Ministry of Health and Family Welfare

- |                 |   |  |
|-----------------|---|--|
| Mini Mission I  | - | Storage and distribution of vaccines                   |
| Mini Mission II | - | Administration of vaccines, monitoring and evaluation. |

#### Under Department of Biotechnology

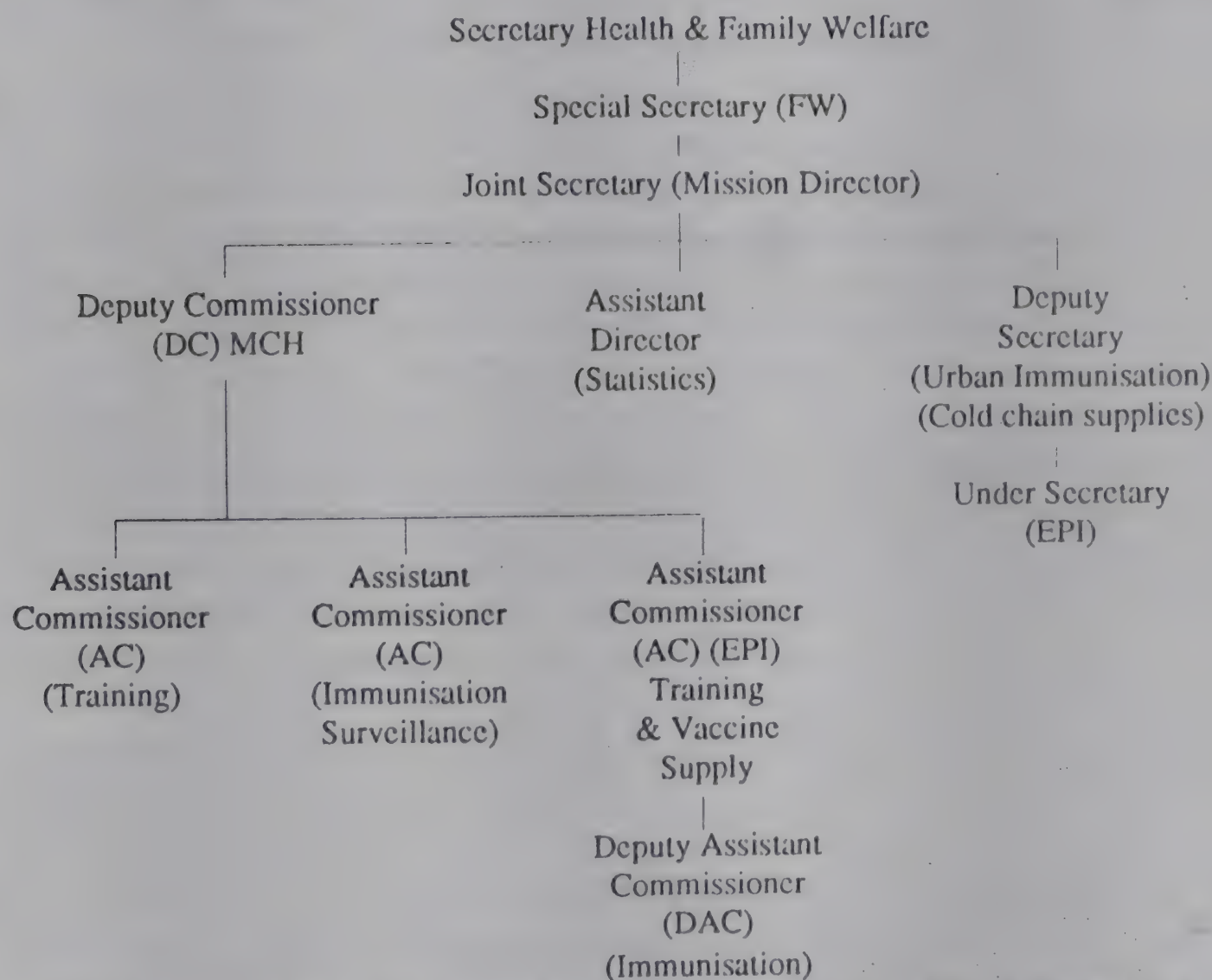
- |                  |   |                                  |
|------------------|---|----------------------------------|
| Mini Mission III | - | Vaccine research and development |
| Mini Mission IV  | - | Vaccine production               |

The organisational structure of the Mission Directorate in the Ministry of Health and Family Welfare as proposed by the Government of India, is shown in



Appendix VI. Accordingly, the Mission Director is supported by technical experts like the Deputy Commissioner (MCH) and Assistant Commissioners who mainly look into training, surveillance and the internal evaluation of the mission activities. In addition, support is also available for managing the administration and accounts, supply of vaccines and equipment, including the cold chain system, monitoring and independent evaluation, as well as media activities.

The current organisational set up of the mission on immunisation at the Centre at the time of review is as follows:



The position of AC (Training) in the mission is vacant. The AC (EPI) is looking after the coordination of supply of vaccines to different States and the training programmes are also looked after by him. The AC (EPI) is assisted by the DAC (I). The Mission Director also has technical support from the Directorate General of Health Services (DGHS) and Indian Council of Medical Research (ICMR). In the DGHS, the Immunisation Programme is being looked after alongwith other Public Health Programmes by the Deputy Director General, DDG(P) who is overall in-charge of all Public Health Programmes. The Assistant Director General, ADG(EPI) looks after the EPI programme exclusively. The ADG(EPI) is supported by two Deputy Assistant Directors General (DADG) and the main responsibility of this



section is currently related to the administration of the vaccine production institutions under the Ministry of Health and Family Welfare. By and large, a major share of the management of the programme is with the Mission, and the bifurcation into the Ministry and DGHS appears to be somewhat peculiar with a very marginal share of responsibilities lying with DGHS. This could generate problems of coordination. However, the same is being presently taken care of by the DC(MCH) who has a horizontal relationship with the ADG(EPI) in technical matters. The ADG(EPI) was stated to be responsible also for organising training activities on planning and management of EPI, though here also, these activities need to be undertaken with close liaison with the Mission in order to avoid duplication of efforts.

At the State level, in the Department of Health and Family Welfare, the Immunisation Programme forms an important component of the Integrated Maternal and Child Health and Family Welfare Programme. There has been variation between States in regard to organisational structures. The organisational structure at the State level is shown at Appendix VI(a). However, most of the time, one officer in the Directorate of Health Services has been identified to look after EPI/UIP, either as a sole responsibility or as one among many responsibilities. The State EPI officer is responsible for the planning and management of the programme in the whole State by ensuring coordination between the various implementing agencies. Districts are the major administrative units responsible for the implementation of all health programmes including EPI/UIP. The Chief Medical Officers (CMOs) are in direct line command with the Director Health Services (DHS) and the State EPI officer is functioning as staff officer to the Director Family Welfare and/or Director Health Services.

With the involvement of medical colleges in UIP, the Directorate of Medical Education also has a joint role in this programme. Moreover, the responsibility of implementing UIP in the three PHCs adopted by Medical Colleges under the Reorientation of Medical Education (ROME) scheme makes their involvement still more essential. The state EPI officer is, therefore, required to maintain liaison with the Medical Education Directorate and medical colleges also. Health services for specific population groups are being provided by various agencies like the Railways, Armed Forces, Public Sector Undertakings, ESIC, CGHS, etc. and proper coordination with such agencies also is to be ensured by the state EPI officer with regard to the Immunisation Programme. Large urban populations in major cities are provided health care through major health institutions run by State and other health agencies, and the preventive health care programmes are mainly to be provided by the Municipal authorities. In bigger cities, Municipal Corporations, within their available resources, provide these services including immunisation. The state EPI officer has to act in liaison with this agency also. At present, these relationships between the

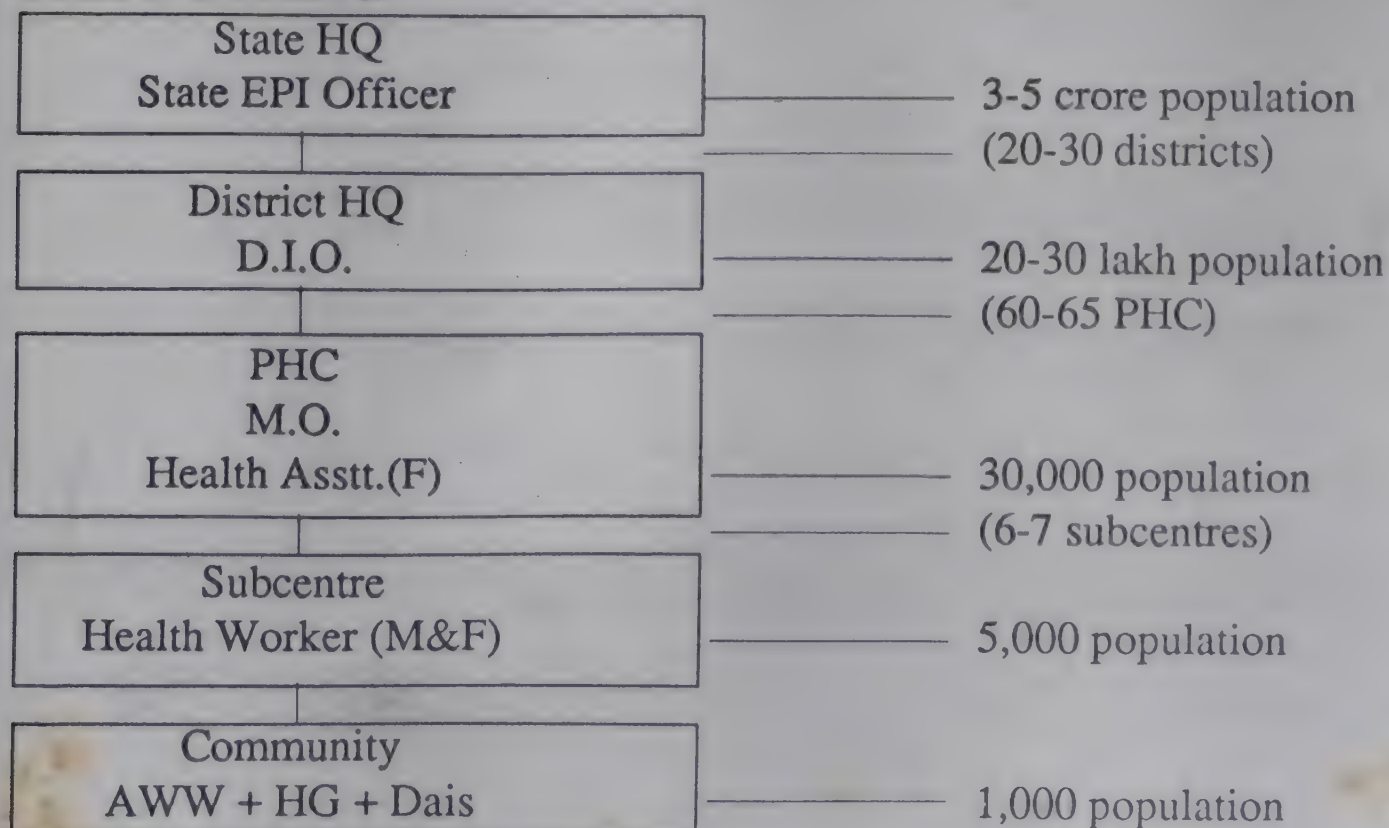


State Health Directorate and other agencies mentioned above are not so well defined all over the country.

At the district level, the District CMO or District Health Officer (DHO) is the chief of all health programmes, including EPI/UIP. By and large, the basic organisational structure at the district remains the same all over the country but minor variations do exist in nomenclatures, numbers and categories of divisions/departments, etc. Till recently, the total responsibility of implementing EPI was with the district officer in-charge of family welfare with delegated responsibility from the CMO. However, under UIP, a new post of District Immunisation Officer (DIO) has been sanctioned at the district level exclusively, for improving the management of the Immunisation Programme and to function under the direct control of the CMO.

Below the district level, the Immunisation Programme is totally integrated with primary health care and is being delivered at the rural health infrastructure including the Community Health Centre (CHC), Primary Health Centre (PHC) and subcentre through the available medical, nursing and para professional personnel. While the female Multipurpose Health Worker (MPW) and Female Supervisor may be identified as the key persons responsible for implementing the programme, every functionary at this level has a definite share in this responsibility, though of varying degrees. In addition, in the rural as well as urban areas where the Integrated Child Development Services (ICDS) scheme has been operational, the functionaries like Anganwadi Workers (AWWs) under this scheme also share a major part of the responsibility with the primary health care personnel including Health Guides (HGs) and Dais.

Thus, the administrative/functional units as well as the average population covered at different levels in the hierarchy for the Immunisation Programme in the States is as follows:



Community health centres have not been included in the diagram because these are 30 bedded upgraded PHCs mainly responsible to provide referral services to the community.

The various responsibilities under the Immunisation Programme broadly divided among Central and State Governments are as follows:

**Central**

1. Provide vaccines, supplies and equipments.
2. Preparation of prototypes of health education materials.
3. Training of senior health personnel.
4. Periodic evaluation.

**State**

1. Delivery of services.
2. Maintenance of cold chain.
3. Organisation of surveillance.
4. Training of junior level health personnel.
5. Monitoring of programme.



## Policies and Issues

The National Health Policy for India has given high priority to health care of women and children and has included immunisation as one of the priority programmes requiring special attention in the immediate context for enhancement of child survival. Moreover, according to the policy statement, primary health care, including immunisation as one of its essential components, has been accepted as the strategy for achieving the policy goals.

Legitimisation for according such high priority was based on the morbidity, mortality and complications following vaccine preventable diseases among children. In the absence of national epidemiological surveys conducted in the country on VPDs, the main source of information was reported data from various health institutions all over the country. In the memorandum of understanding of the Government of India with UNICEF, the prevalent situation on VPDs was described as follows:

About two million children die or become disabled due to six VPDs annually. About 500 children are paralysed daily by poliomyelitis, 2,50,000 new borns die annually of neonatal tetanus (NNT), 2,00,000 children die of measles, some 4,00,000 children die of tuberculosis and 1,50,000 die due to whooping cough. The aftermath of measles results in severe malnutrition, and bronchopneumonia. Tetanus also takes a heavy toll of lives in older children.

Prevention of the occurrence of vaccine preventable disease will not only reduce morbidity and mortality, but also prevent handicaps arising due to poliomyelitis. It has been reported that about 2/3 lameness amongst children is due to poliomyelitis.

The true picture of the magnitude of the problem due to 2 major VPDs, NNT and poliomyelitis was made available in India in 1981-82. Sample surveys conducted in 1981 and 1982 in 11 States revealed the neonatal tetanus mortality rate to be 13.3/1000 live births in rural areas and 3.2 in urban areas. The incidence rate of paralytic poliomyelitis was estimated to be 1.6 and 1.7 per thousand children in the 0-4 year age group in urban and rural areas respectively. It is projected that in the absence of



the Immunisation Programme, around 40 million cases with 1.5 million deaths occur due to VPDs annually.

Against the goals specified for immunisation coverage in the National Health Policy, EPI which was in operation since 1978 showed very slow progress, which clearly indicated the need for accelerating the pace for improving coverage with quality services. Recognition of the potential of immunisation as a cost effective technology for child survival had resulted in the extension of EPI with the aim of providing universal immunisation by 1990 under UIP. Members of the Task Force constituted by Government of India under the chairmanship of Shri R.P.Kapoor, to prepare a plan of action to achieve the objectives of UIP, felt that successful implementation of the project will:

1. greatly reduce the morbidity and mortality among children and will enhance the child survival rate;
2. establish an active interaction between mothers and primary health care functionaries;
3. constitute an important step in the journey towards health for all by 2000 A D; and
4. be the leading edge of primary health care and could be the entry point for a continuous system of delivery of a package of MCH services.

Policy planners believed that immunisation, prophylactic treatment against nutritional deficiencies and oral rehydration therapy against childhood diarrhoea, are the most simple, cost effective package of health services which will enhance child survival and prevent avoidable disability long before significant improvement in the level of economic development could be achieved. The high priority accorded to the Immunisation Programme by the Government of India is reflected in the fact that it has been included under one of the seven National Technology Missions.

According to the Government of India, the package of MCH services combined with simultaneous efforts in other related areas like services for aseptic and safe delivery through trained birth attendants, improvement in nutritional standards, provision of safe drinking water, etc. should make it possible to achieve reduction in infant and child mortality.

Convinced about the benefits of universal immunisation, the National Health Policy has set the following targets to be achieved by 1990.

Though measles vaccine was not mentioned in the National Health Policy, the Planning Commission's steering group on health and family welfare has recommended the inclusion of measles vaccination.

As a policy, the programme will be implemented as a part of primary health care through a network of female MPWs, supported by male MPWs and assisted by VHGs and AWWs. The universal coverage of immunisation of infants and pregnant



women will be executed over a five-year period in a phased manner. Thus, about 18 million infants and 24 million mothers will be immunised every year.

**Table 2**  
***Expected Immunisation Status by 1990***

		Immunisation Status: 1990
		(% population)
DPT	Infants	85
Polio	Infants	85
BCG	Infants	85
Measles	Infants	85
T.T.	Pregnant women	100
T.T.	(for school children)	
	10 years	100
	16 years	100
D.T.	(New school entrants)	
	5-6 years	85
Typhoid	5-6 years	85

In the final analysis, the objectives of the mission for the Universal Immunisation Programme are to:

1. Reduce morbidity and mortality due to diphtheria, pertussis, tetanus, poliomyelitis, tuberculosis, and measles among infants.
  - a. Reduce the incidence of residual polio paralysis to less than 0.5 per 1,00,000 population;
  - b. Reduce the neonatal tetanus mortality rate to less than 1 per 1000 live births.
2. Reduce mortality due to tetanus amongst pregnant women.
3. Achieve self-sufficiency in vaccine production.

Policy planners may display a great deal of confidence and make believe that the package is an 'opportunistic marvel'. Yet there are many issues raised by critics of the programme who question the wisdom in launching such a costly mega venture. They fear that the fanfare with which the programme has been launched may ultimately misfire. They feel that UIP like the Family Planning Programme is hijacking the space from various other programmes needing greater attention and high order of prioritisation.

It has been argued by some that the premise on which the programme had been built is totally untenable. There is no epidemiological evidence to support the contention that control of six vaccine preventable diseases will make any dent in infant mortality. Six VPDs form a very small proportion of diseases which cause death and illness in children below five years of age. According to surveys of causes of death in infants by the Registrar General of India, prematurity, respiratory infections, and diarrhoea predominate and none of them are vaccine preventable.



According to them, 60-90% of deaths of children under five years are due to diarrhoea and respiratory diseases and only 10-12% account for six vaccine preventable diseases and, thus, lack epidemiological justification for launching an Immunisation Programme at the national level. To quote Dr. Debabar Banerjee "There are gaping holes in the knowledge of epidemiology of six vaccine preventable diseases to be attacked. This sounds incredible. This is like mobilising a huge army without even knowing who the enemy is; what are its strengths and weaknesses?" Thus, according to him, it is by far the most staggering flaw in the policy.

Forgetting for a moment that the six VPDs pale into insignificance when looked at against the backdrop of total health problems viz. poverty, malnutrition, tuberculosis, leprosy, diarrhoea, dysentery, cholera, worm infestation, acute respiratory infections, anaemia, etc., the question has also been raised as to how and why immunisation is chosen as the most effective method in controlling the six VPDs. Knowing fully well that causation of disease is multifactorial, relying totally on one single tool to control the disease has not been accepted as a sound policy. For example, tuberculosis is best controlled by interrupting transmission in adults; yet, the government, instead of revamping the national tuberculosis control programme, is relying on B.C.G. vaccination which gives very little protection.

Similarly, the spread of measles is not only greater among the malnourished population, but complications and mortality are also high in this group. Therefore, doubts have been expressed regarding the usefulness of measles vaccination alone without tackling the problem of malnutrition among children.

Various questions have been raised regarding the immunisation schedules recommended for India also. There is a feeling that a large number of issues related to the schedule of immunisation, doses, and type of vaccine should have been resolved before launching such a massive programme. Similarly, the number of doses of polio vaccine has also been under debate - whether it is enough to give three doses or whether it should be five doses, or it should be started at birth, etc. There has been doubt expressed regarding the rationale of fixing of the age group for completion of primary immunisation under one year. The question raised is whether it is based on epidemiological observations or is it the acceptance of inability to cover all the preschool children and, therefore, the target group has been scaled down to one year.

Another issue raised about the Immunisation Programme is regarding the fixation of target of coverage at 85% level. It is not understood as to how and on what basis it has been assumed that 85% coverage of infants would provide adequate herd immunity and help in interrupting disease transmission. It is also said that the phenomenon of herd immunity would only be effective when all potential suspects are protected. The potential suspects for these six VPDs are children from the 0-5 years



age group whereas under UIP, only infants are being protected, though there is a provision for providing services to older children on demand.

Besides, several studies have shown that even with more than 85% coverage and vaccine efficacy of more than 95%, cases of poliomyelitis have still been occurring in those areas. Many are, therefore, recommending that there is a need to revise the policy regarding expected coverage level and suggesting that it should be extended to 100%.

Even in the areas showing an overall optimum coverage, the number of serious outbreaks of measles have been reported in pockets with poor coverage scattered within such areas due to lack of uniform coverage.

It is also pointed out that the natural process of immunity is altered in a population which is dependent on immunisation. Therefore, mass campaigns of immunisation, if not continuously maintained, can result in severe outbreaks. With growing stress on immunisation coverage, it is feared that the tendency to organise special camps would gradually increase, without proper attention to sustained efforts to protect the new susceptibles.

It has been repeatedly stated by the authorities that the Immunisation Programme is an integral component of the MCH programme which, in turn, is one essential element of Primary Health Care. As per the existing set-up, this is to be run by the existing infrastructure and the services under the programme are to be delivered to the community in an integrated manner by the field health functionaries. However, the extra emphasis laid on target achievements under UIP as in the case of the Family Planning Programme, makes one fear that all other components of MCH or primary health care services are likely to be pushed aside by the functionaries. Similarly, the present organisational set-up of the programme itself leads one to suspect a strong element of verticality in the programme. At the Centre, State and district levels, additional staff exclusively looking after different components of the Immunisation Programme are being appointed, e.g. seven additional officers with nine support staff at Central level; two additional officers with nine support staff at State level; four additional staff at district level. Out of the four, one will be the district programme officer.

Even at the Centre, though the mission on immunisation is within the Department of Family Welfare, there are doubts regarding the extent of integration of the programme with other components of family welfare. Creation of an exclusive organisational set-up, separate budget provision as well as independent handling of the same and the formulation of a mission give credence to the argument that once again a vertical programme has been thrust by the authorities.

Another issue raised by many regarding the programme is that, apart from being a vertical programme, the total overall programme details including strategies, operational details, norms of resource allocation, etc. follow a uniform pattern



throughout the country. No consideration has been given to epidemiological and ecological profiles, organisational and managerial capabilities and preparedness or limitations in terms of the general economic development status of different States. It is a well established fact that socio-economic variations between the States or even within the same State influence the implementation of the programme and achievement of results. The poor performance in many States in the Hindi belt lends support to such assumption. A universal Central pattern and the dependency on Central assistance have failed to enthuse State Governments. According to the critics, most of them have received it passively and branded it as a 'Centre's programme'. Such an attitude interferes with the absorption of the programme in the total health services of the State and raises questions regarding the sustainability of the programme once the 100% assistance from the Centre is withdrawn.

To reach the target of immunisation coverage of 85% of infants and 100% of pregnant women before 1990 is a very challenging and stupendous task. It is also pointed out that the programme is not a one-time venture, but year after year, even after 1990, around 18.5 million infants and 22 million pregnant women have to be protected. Many experts believe that to achieve such goals is nearly impossible and requires a huge army of workers, massive input of resources and intensive efforts. Current levels of achievement lend support to their criticism and seek an answer to the question as to how it is expected that those districts included in the year 1989-90 will achieve such a high level of target when even the districts included in 1985-86 are still lagging behind.

Either by design or oversight, the rapidly increasing urban population has not been included seriously under UIP. No specific policies have been adopted as to how this group is to be protected. It may be argued that urban areas already have some built-in facilities for providing immunisation services through their medical care facilities, yet, it cannot be denied that they are not large enough to meet the challenges of the evergrowing urban population, with mushrooming of slums; nor are they prepared to assume areawide responsibilities in a coordinated manner. Therefore, the immediate questions that arise are;

1. Ignoring such a large part of the population how do we hope to achieve the targets set for 1990 for protection of infants and pregnant women? This would in itself jeopardise the phenomenon of herd immunity.
2. Do the existing facilities in urban area have the will or wherewithal to meet the needs of the socially handicapped urban population?

Pushing the States to achieve targets will mean upsetting the rhythm of general health services. Having failed to achieve targets through routine services, the States will be compelled to organise mass drives/campaigns. States with 'weak' health services are more likely to default and consequently be singled out to launch special



drives resulting in diverting of their meagre resources. Loading the fragile health infrastructure in many States with target oriented programmes will only hasten the process of crippling the structure.

A number of national programmes like control of communicable and non-communicable diseases are transferred to the State Governments for implementation by dangling the carrot of 100% Central Government support. The States, in their own wisdom, accept such programmes, utilise the assistance for creation of posts and development of infrastructure - mostly to work in a vertical fashion. In this process, the States are constantly playing a balancing game of according priority and giving more attention to one at the cost of the others. Once the assistance begins to dry up, the programmes are allowed to languish and problems allowed to perpetuate.

Another apprehension about the programme is regarding the manner in which the health staff will perceive their role in this programme. Introduction of any new programme is likely to generate a feeling amongst peripheral workers that they are being burdened with additional responsibility and, thus, create anger and disinterest among them.

The Immunisation Programme is the single largest programme in terms of financial allocation in the current Five-Year Plan. The Ministry of Health and Family Welfare has allocated Rs.240 crores and the Department of Biotechnology Rs.100 crores. It is also suspected that besides the budget of Rs.340 crores, the programme may use large chunk from the MCH programme budget also.

Integration of the Immunisation Programme in the general health services has been ominous, and is proving to be worse than the vertical programme. Being target-oriented and time-bound, it has hijacked space from other health activities. Many feel that the prohibitive costs and manner in which these programmes are run make one believe that they are being nurtured at the cost of the provision of primary health care along the lines envisaged by the Bhore Committee and that these programmes have not only diverted material resources but have resulted in paralysing the primary health care and rural administrative services.

Even international agencies like WHO and UNICEF have come under a cloud of suspicion and are being accused of becoming conduits for the resurrection of the utterly wasteful, discredited technocentric campaigns against selective diseases.

Contrary to the assertion of policy planners that UIP will be the leading edge of Primary Health Care and constitute an important step in the journey toward health for all by 2000 A.D., the policy of UIP is believed by some, to be an antithesis of the statement of the national health policy. In their view, it is a technocentric programme thrust upon the people, making them totally dependent, without promoting community self-reliance. It is an exercise of motivational manipulation by instilling a psychosis of fear for six diseases and expounding the virtues of immunisation.



Critics ask, ‘‘Why a Mission on Immunisation’’? How can the creation of Mission, without removing planning flaws, could help in achieving the goals set? It is also asked how loading the Mission with generalist administrators without adequate technical support is going to help the programme. Besides, they cannot be held accountable for their decisions because of their frequent transfers, a classical instance of authority without responsibility.

The objective of the Mission is to reduce mortality and morbidity due to the 6 VPDs. However critics feel that the programme’s performance is monitored not by measuring the impact on mortality or morbidity but by assessing the achievement of the targets. Consequently, the programme has degenerated into a numbers game, bereft of its epidemiological and human dimensions.

Critics also question the wisdom of totally marginalising the DGHS from the activities of the Mission. Moreover, it is an irony of fate that whereas other components of the MCH programme are being looked after by the Department of Family Welfare, immunisation of infants has been singled out to be looked after by the Mission. It is also not clear, what role the Mission has in providing booster doses and immunisation of older children and who acts in the event of outbreaks of vaccine preventable diseases.

Though it is loudly claimed that all services should be integrated, it appears that the total family welfare services have been severely fragmented and segmented. Different components of activities are being looked after by different agencies, some by the Department of Family Welfare, some by the Technology Mission and others by DGHS, and IEC by various other agencies.

It is feared that such an expensive time-bound and target- oriented programme without any epidemiological justification thrust upon the over-burdened infrastructure in the States, will ultimately prove to be yet another misadventure without making the tiniest dent in the total health problems of children.

The issues raised above draw a dismal picture of the entire programme. However, it may not be entirely true. Therefore, it would be more appropriate to review all the issues more objectively and pragmatically and put the matter in the right perspective.

There is no disagreement on the fact that enough baseline data are not available to justify the high prioritisation of the Immunisation Programme. There is also no denying that major health problems influencing child survival are due to poverty, poor sanitation and lack of adequate health facilities requiring greater efforts on the socio-economic fronts through employment, better living conditions, nutrition, improvement of sanitation, etc. Nevertheless, critics do admit that 10-12% of child mortality is due to vaccine preventable diseases. Many of these diseases also cause severe morbidity and, sometimes, permanent disability. Around 2.5% of measles



cases die during the acute stage of the disease. Besides, it causes severe malnutrition and affects the immune system, thus, making children vulnerable to other infections. Measles is also known for its seriousness when associated with its common complications like respiratory infections and diarrhoea. According to experts in the field of child health, neonatal tetanus and measles are the prime killers among VPDs, hence, immunisation against these diseases should have been given in the first instance. Whooping cough, an acute respiratory infection, besides causing death, sets in encephalopathy and, in some children, severe brain damage. It is also well known that pneumonia can be one of the serious complications associated with whooping cough. It has been agreed upon by many that the leading causes of mortality and morbidity among pre-school children are diarrhoeal diseases and respiratory infections. The causal relationship of acute respiratory infections with diseases like measles and whooping cough also needs to be taken into account. Poliomyelitis, it is well known, leaves its tell-tale stories. It is estimated that nearly 2,00,000 children become lame due to poliomyelitis annually in India.

Therefore, it is untenable to allow these diseases to multiply and take a heavy toll of life, (even though it may not be as high as due to other causes) particularly, when technology is available to contain them, and which is stated to be a cost effective one. It is true that vaccination may not be the only solution, but it is immediately available. The success story of the eradication of smallpox by protecting potential suspects with a potent vaccine also needs to be remembered. Also, this strategy has already been tried out and not only has it been found effective but has been acceptable to the community too. With increasing awareness, people have started appreciating the value of immunisation, though at a slow pace. Moreover, one cannot afford to wait for socio-economic and environmental development, which will take long time to come about. One has to remember that for enhancement of child survival, one would have to depend upon a mix of technology and development. It cannot be either one or the other. It has to be both.

One may dispute the manner in which the programme has been launched, or the cost input, but the validity of the programme is unassailable for the simple reason that its impact, howsoever little, is going to influence child survival.

However, the caution sounded by experts that areas of low coverage or where the natural process of immunity is altered are potentially prone to outbreaks of diseases, is logical and merits respectful consideration.

Taking a cue from demographers, who are constantly predicting the number of births prevented as a result of family planning procedures, experts in UIP have also begun to predict the number of vaccine preventable disease cases prevented due to the Immunisation Programme. The occurrence of disease is a biological phenomenon which does not follow the rules of birth but is governed by a number of variables



related to causative organisms, environmental factors favouring transmission, level of immunity in the community, etc. Therefore, such predictions should be judged on the anvils of epidemiological truth and accepted with caution.

It is, therefore, suggested that in disease control programmes, it is not sufficient to know “what has been achieved”; it is important to know “what remains to be achieved”. Instead of judging performance by target achievement, it is important to know how many eligibles remain to be protected. Peripheral workers may be trained to monitor their own progress through regular assessment of eligibles to be protected in her/his area of coverage.

Our country is committed to accept the primary health care strategy of which immunisation is one component. The Government of India has intensified efforts simultaneously to accelerate other components of primary health care, viz. expansion of infrastructure, maternity and perinatal care, diarrhoeal disease control, family planning programme, prophylaxis programmes against nutritional deficiencies, information education and communication for health and family welfare, provision of safe drinking water and improvement of environmental sanitation, etc. It will suffice to say that the Minimum Needs Programme, Integrated Rural Development Programme, schemes for rural unemployed, massive allocation of funds for water supply and improvement of sanitation in the current environmental sanitation decade are directed towards total development of the common man. Therefore, it would be incorrect to state that the Immunisation Programme is siphoning off precious resources from other programmes. It is also true that the need for development of expensive specific technical resources like the cold chain equipment is an essential requirement for the implementation of this programme which may not be true with some other components of primary health care mentioned above. Further, the way the programme is run today in a relatively vertical manner, forces the authorities to deviate from the desired path of strengthening the total health care system with a comprehensive MCH package which, in the long run, could have given better results in terms of improved health status of women and children. Therefore, if at all a Mission was to be formed, it should have been for MCH, rather than for immunisation alone.

The Immunisation Programme run as a time-bound, target-oriented programme, is jettisoned with the existing health care system and is allowed to swim or sail with it. Yet it would require certain essential inputs, so as to immunise children with good quality and safe vaccines, given under aseptic condition by a trained worker. Therefore, a good organised programme would require:

1. Good quality of vaccine
2. Scaling up of production of vaccine and supply
3. Maintaining quality of vaccine through a well organised cold chain system from the production site to the remotest outreach.



4. A well organised distribution system.
5. Supply of equipment and material for sterilisation of syringes and needles, so as to ensure services under aseptic conditions.
6. Retraining of the health workers to ensure better quality of services.

Though the Immunisation Programme has been going on in our country for a long time, the efforts to develop the above facets of the programme have been rather slow. It is only with the acceleration of the programme, under UIP, that serious efforts have been made to ensure a well organised cold chain system, enhanced production of vaccine and arrangement of an efficient distribution system. Therefore, the major portion of the budget had to be spent initially on establishing and developing various essentials required for a good programme. Such expenditure was inevitable and should not be considered a wasteful investment, in whatever manner the programme had been launched. Of the total allocation of Rs.2400 million, Rs.717.67 million is spent on walk-in-coolers, deep freezers, ILRs, vaccine carriers, transport vans, loan for mopeds, etc. Another Rs.826.20 million goes to meet the cost of vaccine, Rs.328.5 million towards the cost of syringes and needles. Only a minimum of 5% of the total budget has been allocated for expenditure on salaries.

It can be said without any hesitation that programme managers have meticulously gone into details and streamlined the distribution system of hardware, its monitoring and its maintenance (and for vaccine too). By and large, short supply of vaccines and other equipment does not remain a major cause of anxiety today.

It can be said that the above inputs have gone to a great extent to strengthen the primary health care system and boosted the credibility of the institution and workers. For example, increase in POL and allocation of Rs.2000 per PHC to meet contingent expenditure like maintenance of the cold chain equipment, will go a long way in meeting the shortage generally with which these institutions suffer.

It really goes to the credit of planners to have strengthened the system well within the appointed time. However, it will be pertinent to remind the planners to make provision for the maintenance of equipment and its replacement when required. Therefore, the recurring cost though enormous, is essential to maintain high standards of immunisation.

Health is a State subject and as per the Constitution, it is the responsibility of the States to provide health care and launch preventive and promotive health programmes. The national health policy has been accepted in 1983, and following this, the States are expected to develop their own specific State Health Policies within this broad framework and, at the same time, identifying their priority needs. Similarly, regarding any decision to take up new programmes/schemes at the national level, there is a mechanism of coordination among the States through the meetings of Central Councils of Health and Family Welfare. This forum is to be fully



utilised by each State to accept or reject programmes proposed to be taken by all the States.

During the past four decades, not many States have shown leadership and dynamism in launching preventive and promotive programmes based on local needs. Scarce resources had always been given as the reason for not doing so. Consequently, since the inception of Five Year Plans, they have depended on Centrally assisted health programmes related to control of diseases and on other promotional programmes. Initially, because of the magnitude and national significance of the problems and also due to the absence of a well organised basic health infrastructure in the States, most of the national health programmes were launched as vertical programmes. The understanding was that with the achievement of a certain degree of control of the problem and development of infrastructure, the programmes will be gradually absorbed/integrated into the States' health system and will be run by States themselves. By and large, the States have continued to depend upon the Centre for financial assistance for most of the health programmes. On the other hand, most States spent most of their own resources for providing facilities for secondary and tertiary care. With regard to the Immunisation Programme, the States have accepted the programme giving it considerable priority attention, although with a reservation in using Central resources by many, particularly for appointing manpower exclusively sanctioned under UIP, under the apprehension that it may become a liability to them once the Central assistance is withdrawn.

Immunisation is not a new entrant. It was one of the important activities required to be performed by peripheral health workers. With the introduction of the MPW scheme, the female MPW is still required to perform the same activities that she was performing as an ANM. Nothing new has been added. Therefore, expecting her to immunise children cannot be considered as overburdening her. During the review of immunisation, it was revealed that in more than 80% of subcentres, immunisation services were being provided as an integrated component of MCH. The ANM showed a greater sense of confidence and believed that some tangible services are now being offered and she is getting more opportunities to establish good rapport with the mothers. On the other hand, a well planned operational strategy for organising sessions in her institution or area should be considered a help to her to improve her functioning and image in the community.

Observations of immunisations conducted by these workers, either at the subcentre or outreach, bear testimony of the good quality of services provided. In nearly 70% of the sessions observed, separate syringes and needles were used for each immunisation. Likewise, during the sessions, the ANMs were communicating with the parents of child beneficiaries about various aspects of immunisation. Also, the vaccine and diluent were kept in ice in more than 80% of the sessions observed.



Rather than considering the programme an additional burden on the health system on the whole, and undoing the total benefits accrued thus far, our effort should be to expand the coverage well beyond what has been already achieved and to utilise the already established infrastructure and the systematic operational strategies worked out, for incorporating more effectively other components of the MCH package to reach the community.

A system of logistics and supplies, maintenance of the cold chain, sterilisation procedures for equipment, scheduling of activities, systematic and regular reporting mechanism, etc. have been established under the programme and the health personnel are increasingly getting oriented to this system through training and experience. Even though it appears to be oriented to a single programme at this stage, this experience can be extended to take care of other programmes also in a gradual manner.

No doubt, as and when other components of MCH are included in the package, simultaneous efforts to provide adequate and appropriate resources should also be made. According to Dr. Ghosh, the view that UIP has interfered with health delivery may be an exaggeration since very little was being done and the utilisation of primary health care services according to many reports, is rather poor.

Setting specific targets under any programme should be considered an effective management tool for achieving better and timely results. The Immunisation Programme has been launched as a target-oriented and specific time-bound programme. Unfortunately, the use of targets has been wrongly applied and resulted in over playing it, resorting to strategies of special drives in many situations at the cost of other programmes rather than a stable and regular service for achieving the targets. The fault lies not in making the programme target oriented, but in the wrong methods used in either target setting (without rational basis and/or involvement of functionaries) or its allocation, or its use in monitoring progress in the achievement of the programme.

Clouds of misconception over international agencies like WHO and UNICEF are misplaced and uncalled for given the circumstance prevalent immediately after independence, when communicable diseases like smallpox, malaria, cholera and many other diseases were taking a heavy toll of lives. With hardly any resources in terms of trained manpower, infrastructure, materials and finances, the only alternative available was to launch mass campaigns against some diseases coupled with simultaneous development of resources. With the increasing numbers of health manpower and vastly expanded health infrastructure, there is no longer any need for continuing or launching new vertical programmes. Yet the results of the mass campaigns launched then with the support of international agencies are clearly perceptible. Smallpox is no longer killing or maiming our children. Malaria is still

a problem, but the magnitude has been greatly reduced. The physician of yore will vividly remember the vast number of children, the young and old, suffering from malaria. Children are no longer found with enlarged spleens. Yaws is a forgotten entity. Therefore, it will be uncharitable to ignore or minimise the gains made.

For our failure to reap the fruits of various programmes, instead of searching for scapegoats, we should ask ourselves, “Why have we failed?” Unfortunately, tinted vision dims the perception, obliterates the obvious, takes away the courage to look at our own faults. Instead of searching for alibis for our failures, let us begin to remedy our flaws.

One of the most important issues is to revamp the health infrastructure. Most of the failures can be ascribed to poor implementation due to the gradually increasing culture of no work. However, it would not suffice to blame the workers, and raise our hands in despair. We have not faced this challenge squarely and boldly. It would be suicidal to postpone tackling of the situation any further, because the success of any programme, not of UIP alone, depends upon the interest, involvement and commitment of workers at all levels. Mere application of tiers of supervision is not going to achieve results. Instead of humiliating and demeaning the workers, we should try to build them up, instill in them a sense of pride and involvement and empower them to take decisions and enable them to discharge their duties with a full sense of responsibility.



## Resources

### HEALTH INFRASTRUCTURE

It had been planned that immunisation services will be delivered as an integral component of primary health care. The gradually expanding rural network of CHC, PHC and subcentres as well as urban family welfare centres, postpartum centres and medical colleges do play a key role in the delivery of the immunisation services to the beneficiaries.

To meet the national goals of health for all, the infrastructure of health services is being expanded. Under the minimum needs programme, it has been planned to provide one subcentre for every 5,000 population and for 3,000 population in hilly and tribal areas, manned by a trained male and female worker; a primary health centre headed by a qualified medical officer for 30,000 population and 20,000 population in tribal and hilly areas; and a community health centre/upgraded PHC which will work as a referral centre for a population of 1,00,000.

A review of the existing facilities published in the Bulletin on Rural Health Services in India for the quarter ending September, 1988, reveals that there are 16,535 PHCs in existence serving, on an average, a population of 28,941. These PHCs have a back-up of 1,10,275 subcentres serving, on an average, a population of 5,518. Approximately 5,000 PHCs and 20,000 subcentres are yet to be established in the current year, so as to reach the targets set by the end of the Seventh Five-Year Plan.

A review of the existing subcentres vs expected number in different districts revealed that in 15 districts out of 43, the number of subcentres was in accordance with the expected number. In four districts, the number of existing subcentres exceeded the expected number. However, in 13 districts, the number of existing subcentres was less than expected. The deficiency ranged between 10% and a little over 40%. In Dibrugarh district, in Assam, and Ganjam in Orissa, the deficiency was more than 40%, whereas in the districts of Anantnag, Badgam, Kasargode and Hissar, the gap ranged between 20-30%. In Warangal, Singhbhum, Hissar and Bijapur districts the proportion of subcentres falling short of expectation ranged between 10-20%, and in district Patiala, the gap was less than 10%. The results are



summarised below showing the proportion of existing subcentres against the expected norms:

**Table 3**

*Distribution of Districts by Situation Regarding Subcentres*

Situation regarding expected No. of subcentres and existing subcentres	No. of Districts
No information available	10
According to expected norms	15
More than expected norms	4
10 % or less deficient as per expected norms	1
11-20% deficient as per expected norms	5
21-39% deficient as per expected norms	5
40% or more deficient as per expected norms	2

Observations made under the National Review of the Immunisation Programme indicated that though, every State has been reporting gradual expansion of the health infrastructure, a large number of newly created facilities have not yet begun operating and have not assumed responsibilities of health programmes in the desired manner. In many places, the old dispensaries have been renamed as new PHCs/subsidiary health centres, without providing any additional inputs to provide preventive and promotive services. Consequently, it was observed that immunisation services still remained the responsibility of the Block PHC or the upgraded PHC/CHC, catering to more than 1,00,000 population, e.g. in Bihar, Haryana, Uttar Pradesh, Tamil Nadu, Assam, etc. The problems in the functioning of these newly created infrastructures are related to lack of specific demarcation of the area of operation and population for such institutions, and lack of proper definition of job responsibilities for their functionaries. If this is rectified, it would go a long way in making these institutions functional. It was observed that in quite a few States, there were no adequate buildings for subcentres. Consequently, the MPW(F) for want of security and convenience used to commute daily between her residence in the nearby urban area and the place of work. Even otherwise, in many States, the observation was that the subcentre staff were generally not residing in their working area and were commuting between the PHC HQ and the place of work.

Information regarding subcentres covered in the review, with reference to the place of residence of its female staff is shown below:

Female Staff residing	% Subcentres
i. In the subcentre building	33.3



ii.	Within subcentre village	36.3
iii.	Outside subcentre village but within the area	5.9
iv.	Outside subcentre area	24.3

From the above, it is apparent that in nearly 30% of subcentres the ANMs do not stay at their place of work. Thus, quite a substantial proportion of time is wasted in travelling, e.g. in Bihar, Rajasthan, Madhya Pradesh, Maharashtra, etc. Almost the same story is true for Medical Officers of PHC also who, in many situations, were not residing in the PHC premises.

By increasing the number of subcentres, it was presumed that accessibility of villagers to the health facility will increase and all the villages under a subcentre will be within the reach of the health worker. However, there are still some subcentres where, some of the villages lie beyond 6-7 kms. which the MPW(F) finds very difficult to reach. Such a situation was observed in a large number of States, and this necessitates reorganisation and redistribution of areas e.g. in Madhya Pradesh, Rajasthan, Bihar, Andhra Pradesh. In Andhra, on an average, a subcentre provided service to approximately 7,000 to 8,000 population.

A review of 383 subcentres during the national review, reflects the population covered by them, as summarised below:

**Table 4**  
*Distribution of Subcentres by Population Covered*

Population Covered	No. of Subcentres	%
3,000 or less	63	16.44
3,001-5,000	211	55.09
5001 +	109	28.45

In almost all the States, there was varying numbers of subcentres serving a population of more than 5000.

Likewise, the number of villages served by subcentres is tabulated below :

**Table 5**  
*Distribution of Subcentres by Number of Villages Covered*

No. of Villages	No. of subcentres	%
5 or less	234	63
6 -10	85	23.5
10 +	54	13.5



Out of 234 subcentres, which covered less than five villages, 45 were such subcentres (12.1%) which served only one village. Except in the States of Andhra Pradesh, Assam and Bihar, there were one to two subcentres in each of the remaining States serving more than ten villages.

Hilly and tribal area, like Himachal Pradesh, Jammu & Kashmir and the North-Eastern States, have different types of problems like low density of population and lack of transport, communication difficulties due to difficult terrain and only a short period in the year being available to operate in some areas which are cut off due to snowfall and heavy monsoon, etc. There were villages reported in Arunachal Pradesh which could be reached only after 2-3 days walk. In Himachal Pradesh, on an average, a subcentre covered an area of 40 sq.km. and as high as 658.8 sq.km. in Lahaul Spiti. Heavy floods and landslides further worsen the situation. Defining the area of coverage merely on the basis of population cannot hold good in such areas. It was for such reasons that the Health Secretary of Arunachal Pradesh was forced to request the Joint Secretary Health, Government of India, to reconsider allocation of immunisation targets and to reduce them by 50%.

By 1989-90, all the districts in every State will come under the coverage of UIP. In the State of Assam, eight districts were included in UIP in 1988-89, and out of these, only three had been fully commissioned and five were still awaiting to be operationalised.

Madhya Pradesh, Bihar, West Bengal, Orissa and many other States have yet not been able to gear up the activities of UIP in the existing districts. Non-approachability during the rainy season adds further to the problems in States of Bihar, Orissa, West Bengal, Assam and some areas of Kota and Jhalawar districts in Rajasthan.

Migration of population during drought conditions, particularly in Rajasthan, and nomads like the Gadarhya Lohar add yet another dimension to the problem of reaching people.

A district is the important mid-level administrative unit in the health care system. Its strength and weakness in terms of total health infrastructure would influence the implementation of any programme, including immunisation. Among the various factors which influence its functioning are the proportion of urban/rural population, density of population, proximity to State headquarters and regional vaccine stores, number of health facilities and their involvement in the programme, their approachability and facilities for mobility.

With reference to the Immunisation Programme, since the district health administration is primarily concerned with rural areas, and, to a lesser degree, with urban population directly, a large proportion of the urban population in any district may influence its successful implementation. Similarly, density of population is another important factor. The lower the density of population, the larger the area to be



covered, and since the Government has adopted population-based norms for health facility and manpower this would necessitate an increase in staff strength and mobility of staff.

## Rural/Urban Distribution of Population

Among the total 43 districts covered in the review, nine had more than 30% of urban population ranging from 30.1% in Burdwan to 47% in Pune, while the proportion of urban population in the different study districts, according to the 1981 census, was around 24%.

On the other hand, in Arunachal Pradesh, Tirap district had 0% urban population. Bilaspur district in Himachal Pradesh and Kanpur Dehat had less than 5% urban population. Distribution of districts according to the proportion of urban population is shown below:

**Table 6**

### *Distribution of Districts by Proportion of Urban Population*

% urban population	No. of districts
< 10%	5
10-20	22
21-30	3
31-40	8
41 +	4
No information	4
<b>Total</b>	<b>43</b>

## Density of Population

Density of population in the different districts studied is as shown below:

**Table 7**

### *Distribution of Districts by Density of Population*

Density of population per sq.km.	No. of districts
< 100	7
101-200	12
201-300	9
301-400	4
400 +	10
No information	1
<b>Total</b>	<b>43</b>

The seven districts which had population density less than 100 per sq.km., are listed below:

	Density Per sq km.
1. Tirap	16
2. Tura	66
3. Aizwal	35
4. Kohima	62
5. Mokochung	65
6. Mandla	78
7. Shimla	100

It will be seen that low density population districts are mostly in the North-Eastern States. Sparse population coupled with difficult terrain necessitates special consideration for allocation in terms of money, manpower and arrangements for mobility of staff in such districts.

### Approachability

The time taken to travel between the districts reviewed and the State headquarters as well as the regional vaccine store was studied.

It was observed that 12 districts out of 43 were located at a distance from the State headquarter requiring more than 12 hours time to reach either by road or rail, whereas the remaining 31 districts were located at a distance requiring only one to eight hours to reach the State headquarters. The regional stores for holding vaccines in these districts, where they were located away from the State headquarters or the district headquarters, were within a distance requiring travel time ranging from 15 minutes to six hours. In eight instances, the regional vaccine stores were located at district headquarters of the districts studied.

Equally important is accessibility and approachability of health facilities within a district. If less time is taken to reach them and approachability is ensured then more frequent visits can be made to such facilities to give supportive guidance to the staff, which would enable achievement of better performance.

In most districts, the distance between the farthest PHC and the district headquarters did not require travel time of more than 6-8 hours. Only in Aizwal district, the time required was more than 12 hours.

Even though PHCs in almost all the districts studied were approachable within a reasonable period of time, in a number of districts, a few PHCs became inaccessible during the rainy season, or extreme cold weather. In six districts viz. Dibrugarh, Katihar, Shimla, Pune, Mandla, Jhalawar, Tirap, Aizwal and Badgam, it was reported that a certain number of PHCs and subcentres were cut off from the district headquarters for a period ranging from a few days to three months. Shimla and Badgam were affected during the winter months, whereas the remaining were cut off



during the rainy season. The North-Eastern States reported that landslides were also responsible for disrupting continuity of services.

### **Transport at District Headquarters**

Almost all the districts, excepting four, viz. Tura, Tripura, Bhiwani and West Nimar, had at least one vehicle at the headquarters exclusively for UIP. Nearly 50% of the districts had 2-3 vehicles for UIP alone. In most districts, apart from vehicles under UIP, whenever necessary, vehicles from other programmes were also utilised for work for UIP. However, in districts Tumkur and Bhiwani, no vehicle from any other programme was used for work under the Immunisation Programme. In one district, the CMO had taken possession of UIP vehicles and the DIO was left to manage his mobility on his own.

### **Transport Facilities at PHC Level**

It was informed that all Block PHCs within the districts studied had transport facilities. However, in 15 districts, in some of the PHCs, the vehicles were off the road. Generally, in a district, 1-4 vehicles of the PHCs were off the road for want of repairs. However, in the South district of Tripura and Tirap in Arunachal Pradesh and Kasargode, 50% of the vehicles were off the road. It was reported that the period of non-functioning of vehicles ranged from a couple of weeks to a couple of months. One vehicle in the district of Tripura and another in Sambalpur had been off the road for more than one year.

## **HEALTH MANPOWER RESOURCES**

The Government of India requested the State Governments to create the posts of State EPI Officer, Cold Chain Officer and Technical Assistant at State level, and the post of District Immunisation Officer, Refrigerator Mechanic, Statistical Assistant, Typist and Driver under UIP at the district level. It was stipulated that the Central Government would bear 100% expenditure on account of salaries, etc. for these posts.

Since this programme was to be implemented as one of the integral activities of primary health care, it was envisaged that the staff at the PHC and subcentre will provide immunisation services and facilitate services in the periphery. The multipurpose worker (MPW) would get support from the village health guides and anganwadi workers. It was stressed by the Government, that the infrastructure should be expanded and trained staff deployed so that services could reach the unreached.

All the States have designated some official at the State level to look after the Immunisation Programme. These State EPI Officers are from the Directorate of Health and Family Welfare and share several responsibilities besides looking after



the Immunisation Programme. Only in a very few States, the posts of EPI Officers have been created to look after the Immunisation Programme exclusively e.g. in Maharashtra, Rajasthan, Punjab, Haryana, Karnataka, Tamil Nadu, Himachal Pradesh etc. Recently, with the inclusion of the Immunisation Programme under the Technology Mission, the EPI Officers are being designated as Director, Technology Mission, in many States like Uttar Pradesh, Maharashtra, Gujarat, etc. In States like Andhra Pradesh, Assam, Bihar, Gujarat, etc. where the Joint Directors of the MCH were also to look after the EPI Programme, they found themselves overworked and felt they were not able to give as much time to the Immunisation Programme as they would like to.

In almost all the States, cold chain officers have joined, but in Assam and Delhi the positions were still vacant. Cold chain officers are expected to play a very significant role in the maintenance of the cold chain equipment. They also have a membership in the working group for cold chain maintenance alongwith representatives of Voltas/Blue Star agencies in most States. Hence, vacancy of such a post or keeping the cold chain officer ineffective will seriously jeopardise the system. In Andhra Pradesh, it was reported that the cold chain officer was not assigned any specific responsibility, was making no tours and was not playing any active role in this most crucial activity for the programme.

At the district level, the posts of DIO were lying vacant in many States. For example, in West Bengal only two posts of DIO had been created against 12 UIP districts, whereas in Bihar only 5 out of 20 DIOs had been posted. Similarly, in a few other States like Arunachal Pradesh, Meghalaya, Tripura, etc. also, many posts of DIOs were reported lying vacant. The staff position at the district level in the study districts is shown at Appendix VII. In the State of Himachal Pradesh, the post of DIO had not been created. Instead, DHOs had been assigned the additional responsibility to look after the Immunisation Programme. Similarly, in Tamil Nadu, the DHO looks after the Immunisation Programme under the designation DHO-cum-DIO.

Even in areas where the posts of DIO have been created and filled, the question of their utility has become a debatable issue. One of the problems expressed by the DIOs has been lack of adequate administrative authority to sort out problems and take decisions. In some States, DIOs were generally junior rank officers, with no administrative and financial powers. In some States like Rajasthan and Uttar Pradesh, DIOs were reported to be junior even to the Senior Medical Officer (SMO) of the PHC and they found it difficult to carry out supervisory responsibilities. In West Bengal, another kind of problem was being faced. The DIOs were supposed to work under one of the Deputy Chief Medical and Health Officers (Dy.CMHOs) viz. Dy. CMHO (III). In one of the districts, the DIO was senior to the Dy. CMHO and, hence, had difficulty in adjustment.



As per reports, the West Bengal Government was reluctant to create new positions under UIP unless they are assured that the Government of India would continue to bear the burden of costs even after the 7th Five Year Plan is over. This was, perhaps, true for many other States also.

The posts of refrigerator mechanic and statistical assistants were reported to be lying vacant in many States. Out of the 41 districts covered in the review, vacancies were reported for refrigerator mechanics and drivers in 21, statistical assistants in 14, and drivers in 12, (Appendix VII). In Rajasthan, it was difficult to find refrigerator mechanics for appointment in the pay scale envisaged to be paid. In Gujarat, Bihar, Madhya Pradesh, Punjab, Haryana, Himachal Pradesh, J&K, Andhra Pradesh, etc., a substantial number of these two positions were lying vacant.

Apart from posts under UIP, the situation regarding the posts in general health services like those of medical officers and health workers was also not satisfactory in many States. Since the Female Health Assistant and MPW(F) play key roles in immunisation, situation related to their postings was reviewed. In almost 50% of the districts reviewed, vacancies existed among these three categories of staff. Vacancies were ranging from 2% to as high as 67.5% in the case of Bengal for Health Assistant Female.

This is further substantiated by the observations of the Director, Technology Mission, Himachal Pradesh\*\*. Only 570 subcentres out of 1,390 i.e. 41%, had both male and female health workers and 143(10.3%) were without any worker. In the absence of these workers, around 35.8% of the subcentres remained non-functional. Needless to emphasise, shortage of key functionaries like the MPW(F) is likely to seriously hamper the work of immunisation.

A large number of posts of medical officers were found vacant in Andhra Pradesh. In district Warangal (Andhra Pradesh), 46% posts of MOs were vacant. Similarly, in Bihar, 33% MOs posts were vacant. Except in States like Goa, J&K and Kerala, by and large, a considerable number of vacancies were found in all the other States. The statement of vacant positions for these categories of staff in the study districts is shown at Appendix VIII.

Frequent transfers and staff turnover was also a common feature observed in many districts. In West Bengal, the present State EPI Officer was reported to be the fourth since the inception of UIP.

## FINANCIAL RESOURCES

Generally, fiscal constraints have been listed as one of the serious impediments in the successful implementation of health programmes. The constraints may be due to:

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\*\* National Immunisation Mission, Himachal Pradesh, 1988



- a. delay in release of funds;
- b. inadequacy of funds;
- c. inadequate utilisation of funds; and
- d. funds not reaching the appropriate levels for utilisation.

On the other hand, providers of funds also face problems due to non-receipt of expenditure statements in time, leading to delays in release of subsequent instalments.

Keeping the above facts in mind, an attempt was made to understand the issues related to financial resources for the programme. It was all the more necessary to study this because UIP is a 100% Centrally sponsored programme and, therefore, this would indicate the extent of coordination between the Central and State Governments. The statement of total allocation and release of budgets to the States by Central Government and expenditure incurred by various States is appended (Appendix IX). During the year 1986-87, a total amount of Rs. 299.79 lakhs was allocated out of which only Rs. 204.03 lakhs was released. The State Government reported an expenditure of Rs. 246.4 lakhs. During 1987-88, the amount of Rs. 433.14 lakhs was released against an allocation of Rs. 550.2 lakhs. The State Governments incurred expenditure of only Rs. 337.2 lakhs. In 1988-89, allocation has been almost doubled i.e. Rs. 1158.88 lakhs. Until December, 1988, Rs. 623 lakhs had been released and the States reported an expenditure of Rs. 258.30 lakhs.

The Central Government releases grants on quarterly basis for each financial year. Once the first instalment is released, the subsequent release of instalments would depend upon receipt of the statement of expenditure for the previous one. It has been reported by some States like Jammu & Kashmir and the North-Eastern States that the first instalment of grants is received in July. The States, in turn, take time to release grants to the districts. Consequently, many districts receive sanction only by the 3rd and 4th quarter of the financial year. By and large, the other States did not complain of such delays.

On the other hand, though adequate amounts of grants had been received by many States, a substantial part of it remained unutilised in some. Non-utilisation of the sanctioned amount had been due to delay in administrative sanction for the creation and filling of posts or procedural delays in purchasing or repairing of equipment. States like Assam, U.P., Orissa, M.P., Punjab and Kerala had not been able to utilise the total budget.

Bihar had not submitted accounts of its expenditure of the previous year. Consequently, the grants for 1988-89 had been reduced and delayed. Similarly, in West Bengal, financial procedures proved a serious handicap in the utilisation of the budget.

The North-Eastern States reported that the allocated budget was inadequate, particularly for POL and contingency. Due to fewer months available for organising



immunisation sessions in the outreach due to climatic conditions, they require greater mobility. Hence, they need a bigger budget for POL. In these States, the repair and maintenance facilities for vehicles and cold chain equipment are inadequate and they have to depend on neighbouring States for this purpose. It costs more and takes more time. Hence, there is a need for more contingency amounts.

One of the major observations was that the delays related to the budget were not so much from the level of the Ministry of Health, Government of India, as from within the States themselves. Even after receipt of sanction at State level, undue delays were made in releasing funds to the districts. Both in Singhbhum and Katihar districts in Bihar, officials stated that there was no fixed time for release of funds. Similar complaints were registered in M.P., Assam, West Bengal, etc.

Some States had failed to release funds for POL and the contingency amount to PHCs, thereby, seriously affecting staff mobility and maintenance of equipment at the local level. Bihar, J&K and West Bengal were reported to be defaulters in this aspect.

In none of the 35 districts and seven North-Eastern States, did the District Immunisation Officer (DIO) have any financial powers to operate the budget, including the contingency amounts. They have to depend upon senior officers for release of funds. In 28 units/districts, contingency grant for the Immunisation Programme was earmarked separately for UIP, whereas in 14 units there was no separate contingency amount under UIP. However, arrangements existed for money sanctioned from the general contingency budget to be used for UIP also, and, hence, not many of problems were reported.

With reference to specific budget availability and use for training under UIP, it was surprising to note that most of the districts had not organised any training programme under UIP during 1988-89 and no specific budget for training had been provided to them. Only 10-12 districts had received a budget and conducted training. In district Shimla in H.P., the grant received for training for 1987-88 had not been fully utilised, hence, no sanction was received during 1988-89.

Of the 10-12 districts which conducted training as mentioned above, except Tumkur in Karnataka, all the other districts were reported to have received funds for training in time. Except Panchmahal district in Gujarat, all the districts also claimed to have submitted accounts in time.

One of the major complaints of peripheral health workers in almost all the States was the unnecessary delay in payment of TA/DA and reimbursement of contingency expenses incurred at the subcentre level. The excuse used by the administration for such delays was lack of budget under these heads.

## **VACCINES, SUPPLIES AND LOGISTICS**

The most formidable task in the total Immunisation Programme is to admini-



ster an effective and potent vaccine to the beneficiary in the remotest outreach. All the vaccines used for vaccine preventable diseases are thermolabile and are required to be kept at a temperature between 2°-8°C lest they lose their potency and, hence, reduce/lose chances of protecting the child.

Another complex situation is that for a vaccine to reach the ultimate beneficiary, it has to traverse a long path beginning from the manufacturer to the airport, State headquarters, regional stores, and health facilities at district level and below, including the outreach. During this course it travels by varied modes of transport (from air to foot), is stored at different levels and handled by various types of functionaries. The snapping of any link during this complex journey would result in loss of quality of the vaccine and defeat the very objectives of the Immunisation Programme i.e. increasing the immune response and reducing morbidity and mortality due to vaccine preventable diseases.

Therefore, to ensure administration of an effective and potent vaccine, the development of a well organised and elaborate cold chain system is required.

A well developed cold chain system consists of:

- a. Equipment like walk-in-cooler (WIC), ice-lined refrigerator (ILR), vaccine carriers, deep freezer, etc. for keeping vaccines at the required temperature during storage and transit at different levels.
- b. Logistics for supply of vaccine and diluent in adequate quantity, at appropriate time, without leading to overstock or short supply.
- c. The need for trained manpower to handle supplies of vaccines and other items and to look after and maintain the cold chain equipment since vaccines also have a defined shelf life and must be used before the expiry of date.
- d. Transportation of vaccine.
- e. A good information system about the movement of the vaccine.

The task of providing a cold chain system to an extensive health infrastructure in the rural and urban areas is stupendous, requiring elaborate planning and pooling of financial resources. Being a Centrally sponsored programme, the Government of India have taken steps to ensure high levels of immunisation coverage with good quality services through strengthening the cold chain system in the country at different levels by providing facilities/equipment for storage and transportation of vaccines.

The steps proposed to be taken by the Centre for strengthening the cold chain system are as follows:

1. Wherever necessary and feasible, the vaccine will be air-lifted from the production units to State/regional stores with prior intimation.
2. Providing walk-in-coolers at the vaccine manufacturing units to maintain 15% buffer stock.
3. Installing WICs at airports from where the vaccines are transported.



4. Providing refrigerated trucks to public sector vaccine production units.
5. WIC @ 1 per district where the population is more than 1 million and 1 for 2 or 3 districts where the population is less than 1 million.
6. Five deep freezers per district for freezing ice packs.
7. ILR @ 1 per PHC.
8. Vaccine carrier @ 1 per MPW and one for outreach immunisation centres.
9. One vehicle attached to each WIC for transportation of the vaccine. In districts with a population of more than 1.5 million, an additional van is proposed to be provided.
10. Loan for mopeds to health assistants and health workers.
11. Dial thermometers to be provided for monitoring the temperature in the refrigerators.

Accordingly, the cold chain equipments expected to be distributed in the country in a phased manner, is shown in table below:

**Table 8**  
***Proposed Plan for Distribution of Cold Chain Equipment to States During 1985-90\****

Items of Cold Chain Equipment	Number of each item to be supplied in different years					
	Total	1985-86	1986-87	1987-88	1988-89	1989-90
Walk-in-coolers	275	75	75	75	25	25
Deep freezers	2,125	500	750	750	100	25
ILRs	28,000	2,500	2,500	2,500	10,000	10,500
Vaccine carriers	30,000	50,000	1,00,000	1,00,000	25,000	25,000
Transportation-cum-supervision vehicle	800	100	250	250	150	50
Refrigerated trucks	4	4	-	-	-	-

\* Source : Towards Universal Immunisation 1990, Govt. of India, Ministry of Health and Family Welfare, 1985

### **Reinforcement of Cold Chain Equipment**

Cold chain facilities in all the States have expanded tremendously after the initiation of the Universal Immunisation Programme. In all the States, except the State of Goa, walk-in-coolers at State/regional stores have been installed and are operative. Although the target of providing one walk-in-cooler to all districts with more than 1.5 million population has not been achieved, yet it can be said that all the States now have sufficient cold storage space to hold vaccines in sufficient quantity to meet their needs.



The supply of cold storage equipment to the districts, PHCs and subcentres has been executed to a large extent as was proposed. The status report of the supply of cold chain facilities in different States is given at Appendix X.

With reference to the supply and installation of WICs in different States, the following observations were made during the review. In Punjab, it was observed that the distribution of WICs was not very rational and based on requirement, particularly with reference to the districts in the southern region as compared to the northern region. In U.P. and Assam, problems due to delay in the installation of WICs were observed. Besides, in Assam, in view of the difficult terrain of the State, shortage of WICs was expressed at different airports. In West Bengal, Calcutta faced problems of storage of vaccine due to lack of WICs and it has necessitated hiring of cold storage space which posed the additional problem of payment of extra charges.

It was planned that institutions, wherever WICs were supplied, were also to be provided automatic generators to meet the situation under power failure. Many States had reported that generators provided were not automatic e.g. in U.P., Haryana and West Bengal. Also the difficulty due to non-availability (not supplied) of generators was reported from States like J&K and M.P.

Another major observation was that most States complained of short supply of voltage stabilizers. In fact, during the period 1985-88, no stabilizers had been supplied to any State. Voltage fluctuations being very common and of high magnitude in many States, the stabilizers already supplied were also reported to be unsuitable to cope with such conditions. Maintenance of voltage stabilizers was specially mentioned as a problem area by some States. For instance, 20% of the stabilizers were reported to be out of order in U.P. at the time of review.

One important issue which merits consideration is related to the supply of ILRs. ILRs had been supplied because they can maintain a temperature of 4°-8°C, with a power supply of even 4-6 hours in a 24-hour cycle and can also be used for preparing ice packs. In the absence of conventional refrigerators or chest freezer, ILRs are being used for storing the vaccines, leaving no facility for freezing ice packs. In the absence of frozen ice packs, transportation of the vaccine to different levels like the subcentre/outreach becomes a difficult proposition. More than 50% of PHCs visited under the review complained about this problem.

Cold boxes were supplied adequately to almost all the States, but in hilly areas like J&K, some problems were expressed since they were too heavy to be carried by the staff. Thermocole boxes, though inferior to vaccine carriers due to their shorter cold life, were found to be still in use since these were lighter and were stated to be convenient for being carried by workers. In Rajasthan and Delhi, for instance, they were found to be in use and in few situations the vaccines were found to be kept in melted ice in the thermocole boxes. Even though, in general, the cold chain



equipment was supplied in adequate quantity, in some States like Punjab, Orissa, M.P., Tamil Nadu etc., shortage of vaccine carriers and ice packs was reported. Dial thermometers happened to be another item which was in short supply as reported by many States. The cold chain equipment allotted for 1988-89 was still in the pipe-line and had not reached a few States e.g. Andhra Pradesh, Gujarat and Kerala.

The vaccine is carried from the PHC to the subcentre by the Health Assistant or MPW(F) on the day of the session or one day earlier in day carriers or thermocole boxes. In States like Assam and H.P., it was observed that the distance to be covered between the subcentres and PHCs was too much, resulting in wastage of time and inability to maintain the quality of the vaccine. Therefore, H.P. has sorted out this problem by allowing the subcentre staff to collect the vaccine from the PHC which is located physically nearer to it even though the subcentre did not fall in its jurisdiction administratively.

For transportation of vaccines from the airport to the regional stores, refrigerated vans are provided in which the vaccines are carried in cold boxes. One of the important issues highlighted was the problem of maintenance of required temperature at the time of transportation. Even the airports in many places did not have cold storage facilities. This was particularly reported in the eastern sector, i.e. Guwahati, Tripura, Calcutta, etc. Frequent cancellation or delays in flights result in the vaccines reaching their destination at late hours in the night. Further, long distances from the airport to the destination e.g. in Mizoram, Arunachal Pradesh, Nagaland etc. has also posed problems in the maintenance of the required temperature. Though it has been stipulated that suppliers will be sending advance intimation regarding despatch of vaccines telegraphically, there have been instances of postal delays and the vaccines were stranded at airports e.g. in Tripura, Meghalaya, Guwahati, Calcutta.

Another important observation in Punjab was that the DPT vaccine from the manufacturing unit at CRI Kasauli was sent to Patiala Military Hospital by post without adequate cold chain maintenance. It appeared to be a general belief among many that DPT and TT are hardy types of vaccines and can withstand higher temperature without losing their potency. This kind of belief is exemplified in Haryana also where it was reported that BCG, polio and measles vaccines were transported from regional stores to the district in cold boxes while DPT and TT were sent without being packed in cold boxes.

Another observation reported from a few States like Punjab, Haryana, H.P. and in some North-Eastern States was that cold chain monitors were not sent along with the vaccines in cold boxes, in the absence of which it was difficult to ensure the potency of the vaccine at the time of receipt.

Maintenance of the cold chain equipment also posed some problems in many States. In almost all the States, the Governments have entered into rate contracts with



Voltas and Blue Star agencies for proper and timely maintenance of the cold chain equipment. Working groups/task force groups with a State level cold chain officer, the representative of the company and the representative of UNICEF as members have been constituted in most States to review the status of the cold chain equipments. As per the instructions, health functionaries from the PHC and district are expected to report regularly to the cold chain officers about the status of the equipment. Despite this arrangement, complaints about breakdown of equipment and delays in repair have been reported from States like Bihar, U.P., Rajasthan, Kerala, M.P., etc. However, this system was reported to be functioning successfully in States like Orissa. The cold chain sickness information card system has been introduced in many States like Tamil Nadu, Orissa, H.P. and is reported to be operating successfully.

With reference to the metropolitan cities, in Delhi, the WIC facility was reported to be available with Delhi Administration. However, Delhi Municipal Corporation, which is the main body responsible for the major share of immunisation activities in Delhi, was facing problems due to lack of cold storage space for vaccines. Similar were the problems in Calcutta Corporation where the limited number of cold chain equipments available with them was to be purchased by the Corporation itself with its own resources and was not supplied by either the Central or State Government.

As an alternative arrangement to meet electricity failures, U.P. had initiated an experiment with installation of solar refrigerators and the results are awaited.

In most of the districts, Paramedical Health Assistants have been entrusted with the responsibility of maintaining the cold chain system, including storage and distribution of vaccines. Nearly 80% of the districts and 90% of the PHCs studied did not have any emergency plan in the event of failure of power supply. Some of the following observations illustrate the lacunae in the existing system and would be of much concern to the authorities.

In district Cuddapah in Andhra Pradesh, a deep freezer was being used as a cold box. Its inspection revealed that measles vaccine was kept in it with very few ice packs. When the temperature was recorded, it was found to be 18°C.

In one postpartum centre in district Katihar in Bihar, the refrigerator was not properly functioning and had not been cleaned for a long time. Consequently larvae and pupae were found in the baffle tray.

In another situation, the MO had been reporting about non-functioning of the refrigerator for many days. On inspection, it was found that he had not switched it on, indicating both ignorance and negligence on his part.

In another PHC, in district Badgam, DPT and TT were found to be kept in the deep freezer. When this was pointed out to the doctor, he quickly picked them up and put them on an open window, allowing them to thaw. He did not realise that these vaccines should not be used any more.



In about 10% of the total PHCs/subcentres visited, it was found that 'the first in-first out' principle was not being followed with reference to vaccines. Likewise, in around 3-5% of health facilities, it was observed that vials of vaccine opened earlier were being reused. In around 7 or 8 PHCs out of a total of 250 PHCs studied, it was found that refrigerators were also being used for storing water for drinking and food items.

It was further noticed that in all the districts studied, about two dozen ILRs were found to be in non-working condition. The greatest number of non-functioning ILRs were reported from Manipur where 9 out of 13 were reported not functioning. In Meghalaya, 4 out of 9 ILRs were reported non-functioning. Deep freezers/chest freezers were found to be in working condition in most places. However, a large number of non-functioning refrigerators (conventional) were reported from many districts. In Warangal (A.P.) 13 out of 18 were not functioning. Generally, the proportion of non-functioning refrigerators ranged between 5 to 20% of total.

In most of the States, it has been brought out that the cold chain system operated quite satisfactorily upto the level of PHC but there were breakdowns at the levels of subcentre and outreach. At some of the subcentres, the vaccine was found to be kept in cold water. This is very serious because a substantial proportion of beneficiaries are immunised at subcentre/outreach levels.

Day carriers have not been supplied in adequate numbers to a few States. People working in hilly and difficult terrain, find it difficult to carry vaccine carriers. Such complaints were received from Shimla in Himachal Pradesh, Anantnag and Badgam in J&K and the North-Eastern States, etc. Even in Delhi, the workers used thermocole boxes in place of vaccine carriers.

During visits of teams for review, it was observed that though every one claimed that the temperature is being monitored, in more than 50% of the PHCs, this was not being done.

## **Vaccines**

One of the objectives of the Immunisation Programme is to attain self-sufficiency in vaccine production for the country. Being a Centrally sponsored programme, ensuring availability of potent vaccine in the right quantity to all the States implementing the programme, is the responsibility of the Central Government. With regard to the sources of vaccine for the country for the Immunisation Programme, except for polio, all other vaccines are being produced within the country now. The DPT groups of vaccines are produced in both the public and private sectors. Polio vaccine is imported in bulk concentrate and after diluting, blending and ampouling, it is supplied by Haffkine Bio-Pharmaceutical Corporation Ltd. (HBPCL) Bombay to the various States. Measles vaccine was being imported till last



year, but presently the Serum Institute, Pune is producing the required quantity of measles vaccine. The estimated quantity of vaccine required for the country for meeting the stated goals of the programme and the production capacity of various vaccine production institutions is shown in Appendix XI.

There are four medical stores depots in the country where the Central Government gets its supply of vaccine stored. These are: MSD Karnal, Bombay, Madras and Calcutta. Vaccines are distributed to the States from these four MSDs as well as from the manufacturers directly as per the instructions received from the Central Government. At the Central Government level, in the Ministry, one Assistant Commissioner is currently coordinating the supplies to the different States.

At the end of each year, information regarding the balance stock of different vaccines available with the States, is received by the Central authority. Based on the estimated number of beneficiaries to be covered under the programme and the allotted targets, the quantity of vaccine to be supplied to each State is calculated for one year. Till recently, the system of distribution to the States was on a quarterly basis. However, presently the policy has been modified to arrange the distribution in ten equal instalments in the year rather than quarterly.

Even with the quarterly system of distribution of vaccines to the States, it was adequate to ensure availability of the required quantity of vaccines with the States. However, since in this quota system, there is no adequate monitoring of the utilisation of the vaccines, and the supplies continued irrespective of the consumption, there have been occasions when the States had excess stock of vaccines, particularly where the performance and thereby consumption of vaccines was not as per expectations. Thus, in the State of Assam at the time of review, the stock of vaccine available exceeded the requirement for more than one and half years. Almost similar were the situations in Bihar, Rajasthan, U.P., H.P. and Andhra Pradesh where the stock of vaccines equivalent to more than six months' requirements, was available.

However, in relation to BCG and polio, particularly in some States like Karnataka, Maharashtra and Kerala, there was shortage due to erratic supply to the States, on some occasions.

From the district headquarters, the monthly supply to the PHCs are generally given based on the indents which take into consideration the balance stock available and the actual requirements. However, in some States like Karnataka and Maharashtra, it was reported that due to erratic supply to the district and consequent shortage at district stores, the staff from the PHCs had to come to the district more frequently for collecting vaccines. It was reported that many PHCs - one or two in almost every State - did not record the date of receipt, batch number and expiry date of the vaccine while recording receipts of vaccine from the district. Similarly, a number of PHCs and even districts, while sending their requirement through indents, did not show the



balance in hand (e.g. Bihar, Rajasthan, M.P.). This practice does not allow a proper check in distribution and results in over stocking of vaccines in some PHCs and shortage in others. In some PHCs at the time of study, there was no stock of any vaccine e.g. in Bharatpur district in Rajasthan and Katihar district in Bihar.

### Monitoring Quality of Cold Chain Maintenance

As an indicator of the quality of maintenance of the required temperature while storing and transporting vaccines to ensure their potency, samples of OPV are lifted and tested at different laboratories. There were four laboratories identified by the Government of India for this purpose initially. The States are expected to lift samples of OPV from various service stations and send them to the laboratories in proper condition. Presently, different States are in the process of establishing their own laboratories for this purpose.

During the review it was found that most of the States were negligent in picking up the OPV samples and getting them tested for potency inspite of repeated instructions for lifting samples every month and getting them analysed. Except for a few States like Haryana, Gujarat, H.P., Maharashtra, Karnataka and Orissa, most other States defaulted. Even among these States, except for Maharashtra, others have not picked up samples according to the desired numbers. The status of OPV testing in the different States as available from the Government of India reports is indicated in Appendix XII.

Details regarding sample collection and results were obtained from the different study units during the review. In Gujarat, 69 samples were lifted and only 31 were found satisfactory, seven unsatisfactory and the results of others were awaited.

In Haryana, 29 samples were lifted, out of which 18% were found to be satisfactory. Drug inspectors lifted 53 samples in this State out of which 43 were found to be satisfactory. In Himachal Pradesh, out of 134 samples, only 76% were found to be satisfactory. In Karnataka, during the last five years, the number of samples lifted and their test results are indicated in the Table given below:

**Table 9**  
*Number of OPV Samples Tested for Potency and their  
Results in Karnataka During 4 Years.*

Year	Number of Samples tested	Satisfactory
1984	5	80%
1986	26	83%
1987	26	35%
1988	165	39%



In Maharashtra, the results of OPV samples tested are indicated in the Table given below:

**Table 10**

*Number of OPV Samples Tested for Potency and their Results by Sources in Maharashtra*

Place from which samples were lifted	No. of Samples	No. of Samples Satisfactory	Unsatisfactory Samples (%)
State store, Pune	0	0	0
Regional Store	8	7	14.3
DHO. Store	46	44	27.3
PHC	991	938	39.8
Civil Hospital	484	398	22.0

The finding of 14.3% of the samples unsatisfactory, even at regional stores, reflects negligence either in transit or storing. Such a high percentage of unsatisfactory samples in any State reflects poor cold chain maintenance and the need for strengthening the system.

One of the problems expressed by many States regarding the OPV test was related to the requirements of proper conditions for transshipment of the vaccine sample to the distant laboratories.

Immunisation has been increasingly appreciated by people and a substantial number of people in urban areas are getting their children immunised through private practitioners. Most of these private practitioners purchase their vaccines from chemists' shops. The maintenance of the cold chain at a chemist shop is of a doubtful nature, because chemists store not only vaccines but many other drugs in their refrigerators and are bound to frequently open the door of the refrigerator.

Though the production and sale of vaccines come under the Drugs Act, in no State except Haryana the officials are utilising their powers for checking the quality of vaccine.

Another important factor observed was that though reporting of the results of OPV for potency should not take a long time, generally there was a great time lag between the despatch of samples and the reporting of results. Such a long time interval defeats the very purpose of the potency test because by the time the results are received, most of the children would have been vaccinated by the defective batch of vaccine.

An overview of the whole system reveals that the problem is not so much of lack of supply, as that of management at local levels. In spite of availability of adequate facilities and clear repeated instructions, the experience of breakdowns in the cold chain system reflects only lack of interest and lack of sense of responsibility.



DPT and TT vaccines should not be kept in a deep freezer or at bottom of an ILR which will cause them to get frozen and spoiled/wasted. Therefore, in places like Leh Kargil or Lahaul Spiti, where the temperature goes down to  $-40^{\circ}\text{C}$ , there is a need to provide equipment which will allow the maintenance of temperature between  $4^{\circ}$ - $8^{\circ}$ . If the vaccines are kept outside they will get frozen and spoiled.

### Other Supplies for Immunisation

Items like the cold chain equipment and other supplies like syringes, needles, sterilisers, etc. are directly supplied to the States by UNICEF after having reached an agreement with the Central Government regarding the details of requirements in different States. The status report of supplies made during 1985-88 is shown at Appendix XIII.

With regard to supplies of items like needles, syringes, etc. many States had reported shortage, particularly at the PHC/subcentre level. West Bengal, U.P., Tamil Nadu, Karnataka, H.P., Andhra Pradesh, Bihar were all in this group.

The principle of one syringe/one needle/one vaccine was not followed in many State/district/health facility. The common argument put forth was shortage of needles/syringes.

Inspection in some districts and PHCs revealed that these supplies had been received but are not being properly distributed among the functionaries. In one or two districts, even the packets had not been opened.

In every district, there have been complaints about short supply of kerosene stoves, pressure cooker-type sterilisers, refrigerator repair kits and dial thermometers. The status regarding selected items of supplies at the subcentre level among 383 subcentres is shown below:

Items of supplies	% subcentres where available	% of items in working order
Sterilisers		
1. Pressure cooker type	35.8	93.7
2. Other types	26.8	82.0
Stove	71.4	90.1
Vaccine carriers	57.9	96.4
Day carriers	34.7	94.0
Thermocole boxes	28.9	86.0

As explained earlier, these shortages were due more to expansion of newer health facilities without appropriate arrangements for these supplies and further due to lack of policy for replenishment of consumable items. To obviate delays, supplies



from UNICEF are made directly to district HQs. However, it would be appropriate if the State HQs are kept informed of these supplies.

## **LOGISTICS MANAGEMENT**

Shortage in supply of vaccine, erratic supply of electric power, frequent power failures, inadequate supply of cold chain equipment, breakdown and delay in repair are the common fears projected by people in general and critics in particular. During the national review, the above mentioned aspects were looked into.

### **Vaccine Supply**

It has been so planned that at any time no district should have vaccine supply for more than three months ; likewise, no district should run short of supply, nor should the vaccine be allowed to remain till the dates expire.

However, 18 districts reported that at one time or another, they faced a shortage in the supply of vaccine. Vaccines which were reported to be in short supply were BCG, polio and measles. Breakdown in supply generally did not last for more than a month. However, in the districts Anantnag, Nanded and Katihar, the short supply lasted for 2-4 months.

Six districts were found to have stock supply of vaccine for more than three months' requirement on one or two occasion. By and large, the vaccine was used before the expiry date. However, two districts viz. Kohima and East Sikkim, could not use the vaccine before the expiry date.

### **Electric Supply**

Fourteen districts reported power cut and load shedding. In these districts, electricity during the summer was cut off more frequently, whereas in Badgam, power cuts were more frequent in winter. However, it never happened to be off for days together. Power cuts lasted from 4 to 8 hours generally. Most district officials reported that ILRs withstood the need fairly well. The power problem was found to be more acute and erratic in the North-Eastern States. Burdwan reported power breakdowns almost every day. In spite of such frequent power failures, it was sad to observe that as many as 20 districts had no emergency plan to meet the situation. Only 22 districts had some arrangements with the local cold storage or ice factory or had arrangements to procure ice. However, in most of districts, ice was available only in the summer. Some of the districts in the North-Eastern States, Himachal Pradesh and J&K did not have an ice factory or facility for ice nearby. Availability of funds for purchase of ice or reimbursement of money was no problem.



## **Cold Chain Equipment**

The cold chain equipment was available, yet 18 districts complained of inadequate supply to meet their total requirement. In district Burdwan, it was reported that inadequacy was more due to poor maintenance rather than inadequate supply. In some districts, auto-claves were reported to be in short supply, whereas many districts had not received pressure cooker type sterilisers or did not know what use they should be put to.

## **Maintenance**

One or other kind of arrangement had been made to take care of the cold chain equipment. Wherever there were refrigerator mechanics, they checked the equipment and undertook minor repairs; where mechanics were not available, repairs were done by a local mechanic. Major faults were referred to the manufacturers with whom the States had entered into rate contracts for maintenance.

Minor defects were attended to within a few days to a week. However, short supply of spare parts or repair kits was cited as a major obstacle in quick repair of equipment.

For major defects to be repaired, it took longer time, from a fortnight to a month. In some cases, the time period extended beyond 2-6 months. A longer time is taken for repairs in the North-Eastern States. For example, in Arunachal Pradesh, it took six months. In Mokochung, a refrigerator has not been repaired for more than a year. Generally, more refrigerators are reported to be out of order than ILRs. Likewise, in many districts, voltage stabilisers have gone out of order.

## **Plan for Supervision**

Nearly 22 districts had no defined plan for visiting PHCs and supervising the cold chain equipment. Visits were either made on receipt of reports, or on ad-hoc basis. No check-list was used for supervision of the cold chain in 22 districts. However, recently a 100 point check-list for supervision, developed by the State of Maharashtra, has been adopted by UNICEF and circulated to all the States for facilitating checking.

## **Logistics at Subcentre**

One of the weak spots identified in the cold chain system is the delivery of vaccine from the PHC to the subcentre/outreach and subsequent maintenance of the cold chain at the subcentre. An enquiry in this area at the subcentre level revealed the following facts:

## Who Brings It

In nearly 74.7% of the subcentres, either the LHV or the ANM brings the vaccine from the PHC to the subcentres i.e. in 43.2% ANMs and in 31.5% LHVs bring the vaccine. Only in 23.1% male workers contribute their services in this direction.

## How It is Brought

In 55.4% of situations, the vaccine was brought by public transport whereas 35% of the subcentres reported that the vaccine was brought by a PHC vehicle. In the remaining 10%, the vaccine was brought either on foot or by moped, etc. The minimum time required for transportation of the vaccine from the PHC to the subcentre was half an hour and the maximum was four hours, and in very few cases it was reported to be more than 5-6 hours.

## When It is Brought to the Subcentre

In 80% of the subcentres, the vaccine is brought on the day of the session, whereas in 20% of the cases, it was generally brought one day earlier.

## How It is Stored

The method of storing vaccine at the subcentre when it is brought one day earlier is shown below:

Method of Storing	% subcentres
In refrigerator of a village person	30.2
In earthen pot with ice	5.0
In earthen pot without ice	4.0
In vaccine carrier with ice	45.4
Others (specify)	
(Thermocole box , thermos)	15.8

The shocking feature that was observed in this regard was that in nearly 4% of the subcentres, the vaccine was stored in earthen pots without ice, and in 5% of the subcentres, though it is reported that the vaccine was stored in earthen pots with ice, it does not stand to reason that the ice can hold for so long. Similarly, the use of a thermocole box for overnight storing leads to suspicion about the quality of the vaccine. It goes without saying that such situations should not be allowed to exist.

In 90% of the cases, when the vaccine is brought on the same day, it is brought either in a vaccine carrier, day carrier or thermocole box. In a few instances, it was brought in a plastic bag along with some ice pieces.



Only in 56.8% of the subcentres, ice was available locally but funds for the purchase of ice were available with only 20.2%. Therefore, the vaccine brought in thermocole boxes or plastic bags was found quite often to be without any ice.

In view of above facts, the supply of vaccine should be made on the same day and strict vigil should be kept so that the workers do not carry vaccine in plastic bags or containers other than those prescribed.

### Observation on Logistics

Maintenance of the cold chain has always been a difficult task and it is suspected that generally, breakdowns occur in this system, leading to poor quality of vaccine. It was for this reason that the cold chain system at 42 district headquarters was observed. A check-list was used to look into the working condition of refrigerators, ILRs, recording of temperature, etc.

Besides, the manner in which the vaccines are being kept, adequacy of supply of vaccine and other equipment were also looked into. It was also attempted to find out whether the stocks are maintained properly, entries are correct or not and whether ILRs or refrigerators are being used for any purpose other than keeping vaccines.

Out of 42 districts, only at one district headquarters, the refrigerator was not found to be working. In the other districts, the deep freezer was found being used as a cold box. In five districts, the refrigerators were found without dial thermometers, and in an equal number, the temperature was not properly recorded. At nine district headquarters, it was observed that recording of temperature was irregular. Only in one, an ILR was found to be without a thermometer. However, most of the districts defaulted in calibrating the thermometers for their correctness. Except for seven district headquarters, the others had not calibrated their thermometers for correctness. Wherever walk-in-coolers, had been installed (in 19), a majority (17) were found to be working satisfactorily except for the fact that in a couple of districts they were packed to the brim. In 19 districts, they were not available and in two they had not been installed. No information could be gathered for three districts.

At no district headquarter was vaccine of expiry date found, nor were any open vials found. However, at more than 10 district headquarters it was observed that unused returned vials were not marked, hence, it was difficult to maintain the 'first-in and first-out' principle. It was observed that the vaccine did not exceed the quantity prescribed to be maintained at the headquarters nor was it found to be deficient.

Except at one place, the refrigerators were used solely for keeping vaccine. Only at one place it was found to be used for storing drinking water and food. Stocks of vaccine were well maintained and tallied with the stock register. It was very satisfying to note that district officials were alert in maintaining the cold chain system, the quality of vaccine as well as good records of vaccine stocks. The only



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complaint was that most of the districts had not received refrigerator spare parts or repair kits. Nearly 30 districts complained on the above score, and 10 districts complained about shortage of immunisation cards.

When compared to the districts, the situation at the Primary Health Centres was not as good as one would desire. Out of 189 PHCs observed, as many as 13.2% reported that their refrigerators were not in working order; 27% did not have any thermometer in the refrigerators; 33% did not maintain temperature record, and 16.4% were irregular in maintaining temperature record. Only in 74.1% instances a thermometer was found in ILRs. The situation regarding keeping of vaccine was also very disappointing. In about 5% of the PHCs, DPT was found frozen, in 6.3% instances opened, used vials were found in stock; 49.2% of the PHCs did not follow the practice of marking returned vials so as to facilitate the 'first-in and first-out' principle and only 68.8% observed this principle. Vaccine stock of more than the permissible limit was found in about 15% of the PHCs. In around 7% of the PHCs, drinking water and other articles had been stored in the refrigerator. Only in 61.9% of the PHCs, frozen ice packs in adequate quantity were observed.

Stock books, entries about vaccine, and quantity of vaccine according to the stock register were found satisfactory in around 70% of the PHCs, and 30% defaulted on these scores. Nearly, 30% of the PHCs reported shortage of syringes, needles, immunisation cards, and refrigerator spare parts.

Such a situation should not be acceptable. The DIO and senior officials should be more vigilant about these aspects during their supervisory visits. More stress should be given on logistics maintenance during training.

In the table below, the results of observations regarding various aspects of logistics at district headquarters and PHCs are shown in Table 11:

**Table 11**  
*Results of Observation of Cold Chain Equipments  
at District and PHC level*

	Items observed	District Yes%	PHC Yes%
1.	The refrigerators and freezers in working order	97.6	81.5
2.	There is a thermometer in all the refrigerators	88.0	73.0
3.	The daily temperature record properly maintained in all the refrigerators	78.57	67.2
4.	Irregular temperature recorded	71.0	16.4
5.	There is thermometer in the ILR	97.6	74.1
6.	Vaccine after expiry date in stock	-	3.7
7.	DPT or TT vaccine found frozen	2.4	4.8
8.	Open vaccine vials in stock	-	6.3



9.	Returned unopened vials are marked	76.1	49.2
10.	'First-in first-out' principle is observed	86.1	68.8
11.	More than 3 months' supply of vaccine present	11.9	15.3
12.	Less than 1 months' supply of vaccine present	7.2	52.4
13.	Food or drinking water seen in the refrigerator	2.6	6.9
14.	Frozen ice packs available in the freezer compartment	96.0	61.9
15.	Vaccine stock registers are maintained	97.6	85.2
16.	i. Stock book entries made properly	90.0	79.4
	ii. Stock book entries made regularly	90.0	80.4
	iii. Stock entries correspond to actual stock in hand	90.0	77.2

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# Operational and Managerial Processes

## PLANNING PROCESS

One of the essential requirements for successful implementation of the programme is to have a proper plan for the programme. In the Immunisation Programme, a series of activities are to be undertaken at different levels in the administrative hierarchy much before the actual administration of vaccines. Therefore, preparation of detailed Action Plans at these levels indicating the activities to be undertaken, the persons responsible, the resources to be mobilised and also the time-frame for completion of each activity are extremely important. During the review, officials in States and districts studied, were asked about the details of the preparation of such Action Plans for immunisation.

By and large, most of the States have reported to be preparing detailed Action Plans on an annual basis e.g. Kerala, Tamil Nadu, Assam, Madras Corporation, etc. However, Assam started this effort only in the year 1989-90. As far as the contents of the Action Plan were concerned, by and large, for most States they were adequate, but one major omission of Information Education and Communication (IEC) efforts was found in Kerala, Himachal Pradesh and Tamil Nadu, whereas in Maharashtra and Gujarat, a strong input on IEC was evident. In West Bengal, the scope of the Action Plan was, however, confined to the achievement of targets only, rather than details of activities and other particulars. In Orissa, the Action Plan made in 1987 was not found to have been revised after its initial preparation.

At the district level also, out of 43 districts covered under the review for which data could be obtained, in a majority i.e. 33, district officials claimed to have some Action Plans available with them under the Immunisation Programme. As in the States, further enquiries regarding the nature and contents of Action Plans revealed considerable inter-district variation. One general observation was that such plans available at the district level were mostly in terms of mere scheduling of immunisation sessions, supply of vaccine, and distribution and achievement of targets only e.g. Katihar, Pune, Panchmahal, Hissar, Kanpur, Shimla, Anantnag, Ganjam, Patiala, Quilon, etc. In some districts it was stated to be mostly based on monthly or quarterly scheduling of immunisation sessions planned by MOs of PHCs e.g. Rajasthan



(Jhalawar), Gujarat (Rajkot and Panchmahal), Maharashtra (Pune), H.P. (Bilaspur). In some PHCs, the activities were actually not found to be following the schedules prepared in the plan e.g. Katihar (Bihar). In Goa, the plan indicated in addition, activities like scheduling of training of different categories of staff, quality control through sample checking of vaccines, production of IEC materials, conduction of coverage evaluation surveys, etc.

In Sangrur (Punjab) and Meerut (U.P.), the Plans of Action prepared were mostly in the nature of official instructions to the functionaries at district and PHC levels. Fixing of supervisory responsibilities and scheduling of supervisory visits were also indicated in a few such plans e.g. Rajkot, Hissar. Sambalpur district in Orissa had a combined plan of action for all targetted family welfare programme activities and was mainly by way of assigning supervisory responsibilities to different district officials.

It was further stated that in 23 districts, the district officials were involved actively in the formulation of the Action Plan in whichever form it was, while in others, the district officer was mostly concerned with passing on the targets allotted to them from the State headquarters to the lower level. By and large, it could be concluded that the district officials did not exercise any effort of making any kind of alterations in the plans indicated by the States.

One of the essential responsibilities of the district authority while planning for the immunisation services is to allocate the targets to the operational units and personnel within the district. They are also expected to estimate the requirement for different types of resources like vaccines, staff, etc. for performing immunisation services. District officials were asked about the criteria used by them for allocating the targets to different institutions/personnel. Their responses were as follows:

Criteria	No. of districts
As per decision by State headquarters	9
Based on population	15
Population, birth rate and IMR	7
Estimated beneficiaries/targets	5
Population, accessibility and cold chain facilities	2
Drop out rate	1
Past performance	1
Not answered	3
	<hr/> 43 <hr/>

By and large, the population remained the basic criteria, apart from the mathematical division of State allotted targets among functional units. Only a small number of district officials stated other criteria for this purpose.

On enquiry regarding the type of information used for estimating vaccine requirement, the following responses were given by the district officials:

Information used	No. of districts
Population	2
Population, BR and IMR	1
Estimated beneficiaries/targets	23
Target and vaccine wastage	9
Not answered	8
	<hr/> 43 <hr/>

While estimated beneficiaries/targets were essentially stated as an item of information necessary for calculating vaccine requirement, the wastage factor was stated by only nine district officials.

The clear identification of precise responsibilities and tasks to be carried out by different personnel, and the importance of specific IEC activities as an element of the Action Plan was incorporated in Madras Corporation, as is evident from the following statement:

“A uniform message-Wednesday is Immunisation day and one syringe, one needle, one injection to one child - has already been spread and it has gained momentum. Every Wednesday is Immunisation Day from 8 a.m. to 1 p.m. Collection of vaccines is on Tuesday and discarding the opened vials is on Thursday. Reporting to the medical officers is on Friday at the weekly review and advance programme is worked out on Saturday for the next week.”

One disturbing observation was that though such plans were made at different levels, they remained at the documentation stage only. The concerned functionaries were not adequately oriented to them e.g. in Tamil Nadu though beautiful plans were prepared for State/district/PHC levels, some of the MOs of PHCs were not even aware of such a document nor were they ever involved in its preparation or implementation.

The recent effort towards effective planning with active involvement of health workers at the actual implementation level through micro-planning exercises was found to be catching up in many States. Orientation workshops towards this approach were conducted in many places. Many States were reported to have initiated preparation of such microplans from subcentre level onwards. Rajasthan, Maharashtra, H.P., U.P., Gujarat, Orissa, Tamil Nadu, J&K, Bihar, etc. have already reported having prepared microplans upto district level in selected districts.

## STRATEGIES OF OPERATION

As per programme guidelines, different strategies can be adopted for providing



immunisation services by the implementing agencies according to convenience and the facilities available. Generally, three strategies are being adopted viz. *fixed centre approach* at health care institutions, generally as per prefixed schedule; *outreach approach* where immunisation sessions are arranged in difficult and inaccessible areas by carrying vaccines and other supplies to such areas; and, lastly, *campaigns or intensive drives*.

In this review, in the districts covered, efforts were made to study the general strategies adopted by them, in particular for the inaccessible areas as well as for the floating population. By and large, all the States had relied heavily on the fixed centre approach of immunisation from different health institutions at the district and upto the PHC level. Fixed days in a week were identified for this purpose. However, under outreach services at subcentre level and at other outreach sessions, no fixed schedules were available. It was also observed in many States that at this level, these sessions were either less frequent or sometimes irregular, e.g. in Bihar, these sessions were held once or twice in a month at the subcentre. Outreach sessions were sometimes irregularly held in Punjab also. Disruptions in these sessions were not uncommon in other States also e.g. U.P. and Assam. In West Bengal, it was even reported that the programme and health personnel were losing credibility among the public due to cancellation of the prescheduled immunisation sessions.

Interviews of the 383 workers at the subcentres revealed that disruption of immunisation sessions was quite common. In spite of preparing schedules for conducting sessions in advance, only 54.2% of the staff stated that they could stick to such planned schedule, whereas 45.8% of the staff stated that the sessions could not be held as per schedule. In the event of such defaults, only 66.3% of the staff stated that community members had been informed about this. According to 65% of the workers, disruption of sessions during the past 1 year period ranged between one to three times, whereas in the remaining case, disruption was more than three times.

Multiple reasons were ascribed for the failure of holding sessions according to planned schedule. The major causes were either short supply of vaccine, absence of workers, lack of transport, or workers being assigned duties other than immunisation. The proportion of workers stating different reasons for disruption is indicated below:

Reasons for disruption	% respondents
1. Shortage of vaccine/diluent	50.6
2. Called for other duties	37.3
3. Absence of workers	28.8
4. Lack of transport	23.2
5. Shortage of syringes	7.4
6. Shortage of needles	6.8



In order to ensure a certain amount of regularity in the programme activities as well as to help people to easily remember the days for receiving the service, many States have fixed specific days of the week for providing immunisation services. In U.P., Mondays have been fixed for Anganwadis, Tuesdays and Thursdays are set for subcentres and in this State as per instructions, no flexibility is allowed for conducting immunisation on any other unscheduled days. The male health worker is expected to motivate cases and the female worker is made responsible for providing the service.

States like Gujarat and Tamil Nadu have identified one fixed day in the week throughout the State for providing immunisation services upto the PHC level, and even for the level below, at the subcentre, the same fixed day was adopted. In Tamil Nadu the days for giving BCG and measles vaccine are fixed in such a way that these are given only on alternate months i.e. BCG in the odd months and measles in the even months.

In H.P., immunisation cards are prepared for each child in duplicate, one of which is handed over to the mother. The other is retained at the centre in sets which are arranged according to the due dates of DPT and polio. As soon as a baby completes the three doses of OPV and DPT, the card gets shifted into the measles box. This system has enabled the functionaries to keep a close track of all the infants for immunisation at the appropriate dates.

One of the problems in Arunachal Pradesh was the long distances to be covered by the staff and the long time taken for covering these distances to reach the villages. In such cases, the State has decided to exclude such villages from being covered under the outreach strategy, particularly those requiring more than 48 hours to reach, keeping in view the difficulty in maintaining the required temperature for keeping the vaccines for such a long time.

One important problem which was observed was the use of the house to house approach for providing immunisation services which would seriously interfere with the quality of the cold chain maintenance, sterilisation of equipment and also make the community more dependent. This strategy was found to be in wide practice in Andhra Pradesh, Bihar and Orissa. However, U.P. was reported to have strictly banned this approach.

In most States, as per the Statement, BCG vaccination has been integrated with other immunisations. The actual mechanism of integration, however, was not very clear and also not uniform in many places. Different interpretations of integration given were: provision of BCG immunisation by the same health functionary alongwith other immunisations or making BCG available on the same day and at the same place alongwith other immunisations but given by the BCG team members. However, in some States like Bihar, Orissa, Maharashtra, Delhi, etc. BCG vaccination is still being organised separately by separate teams. This disintegrated approach had resulted in Bihar having coverage for BCG immunisation practically at very low



frequency, and in Katihar district, the turn of some villages for BCG immunisation came after an interval of an year or so. With regard to scheduling of BCG, Orissa has adopted a policy wherein BCG is given as the last in the series of primary immunisation after DPT and polio. In Karnataka, in Bangalore city, BCG is recommended to be given to infants immediately after birth in all Government as well as private hospitals and nursing homes. The State Government authorities are extending their cooperation to private institutions by providing BCG vaccine and also health personnel to give immunisation services as well as for training the private health personnel.

In Bombay Corporation also, BCG is recommended to infants immediately after birth. The birth card/certificate (indicating BCG status also) is prepared in duplicate, one of which is handed over to the mother and the other to the Corporation health office. This, in turn, is sent to the zonal health authority of the zone in which the mother resides. This not only enables complete birth registration but also helps the concerned zone/health post to identify beneficiaries for immunisation services.

In Andhra Pradesh, slightly different type of vaccination operations were planned. In Cuddapah district, the immunisation sessions were scheduled once a month in the entire district between the 19th-24th of every month, for reasons unknown. This would probably interfere with the quality of maintenance of the cold chain system at the subcentre and village levels.

The campaign approach has also been reported to be used in some States like Bihar, Punjab, J&K, Kerala, etc., particularly in the winter months in the Northern States. In Bihar, in some PHCs, the total area was divided into 3 sectors and PHC staff members were pooled into teams. In each sector, immunisation activity through the mass campaign approach was undertaken for three days in a month. After 3 months, the centre team moved into the adjoining sector. By and large, U.P. State discouraged the campaign approach, as a policy.

One of the major issues in relation to immunisation coverage is the special population groups like tribal, desert, mobile groups, etc. and also people in otherwise inaccessible areas. This was a problem particularly in States like West Bengal, Rajasthan, Orissa and the North-Eastern States. However, there have been no specific efforts or strategies adopted by most of these States to cover such population groups. On the other hand, Maharashtra, Tamil Nadu, Kerala, H.P., etc. were reported to have adopted the special campaign approach for covering such population groups.

On enquiry from the 49 districts/units, including the North-Eastern States, in 20 districts it was stated that special strategies were being adopted for achieving immunisation coverage in inaccessible areas or in the special population groups. In Sangrur (Punjab), immunisation camps are held on fixed days in both urban and rural areas. In urban wards and inaccessible areas, such camps are combined with MCH



clinics on priority basis. In Kasargode (Kerala), urban areas are covered through outreach sessions by post partum units while rural inaccessible areas are covered through outreach sessions with the help of NGOs and local bodies. Special drives/campaigns are being adopted in Shimla, Hissar, Jhalawar, Warangal, Ganjam, etc. In Hissar, Haryana, campaigns are organised during darbars with the involvement of private practitioners. In Tripura, health camps covering immunisation services are organised in inaccessible areas by the district magistrate. In Thoubal, Manipur, urban areas are being covered by staff from adjacent PHCs. In Assam also, efforts with the special campaign approach were reported as being planned for the special population groups affected by floods.

While special campaigns are also being arranged by States like J&K and Nagaland, it was stated that these campaigns were undertaken by special teams constituted for this purpose rather than the regular staff of the PHCs and subcentres.

Even though in most States, such detailed operational strategies are worked out for rural areas, it was quite disturbing to observe that, by and large, urban areas were neglected to a great extent for want of clear policies for allocation of resources as well as area responsibility for multiple health agencies and institutions functioning in such areas. In many urban institutions, there were problems due to lack of defined area responsibility, inadequate trained manpower and cold chain equipment, poor record maintenance, etc. One of the main problems in urban areas was also due to the lack of coordination among the different agencies/institutions with regard to the operational details of the immunisation services.

## **SUPERVISION**

Because of the wide range of tasks, crucial and inter-related, being performed by health functionaries, a good system of supervision is extremely important for the Immunisation Programme. Supervision ensures investigation of reasons for poor performance and development of strategies for improvement, but it also should ensure recognition of good performance.

During the review, State officials as well as district level and PHC officials and staff were asked about the pattern of supervision followed by them. The main methods reported to be adopted generally for supervision in the different States/districts reviewed were periodic visits to the different health facilities and immunisation sessions in outreach areas, conducting review meetings and checking of records. With reference to supervisory visits, it was found that visits exclusively for the Immunisation Programme were being made by State EPI officers in States like Gujarat, Rajasthan, M.P., Karnataka, Tamilnadu, Kerala, Andhra Pradesh, etc. In some other States like Haryana, Bihar, the officers at State level were being given responsibilities of supervision of various programmes on a geographical basis and,



therefore, were expected to supervise the Immunisation Programme as one among others. At the district level also, similar geographical demarcation and multipurpose supervision was reported. However, in many situations, it was reported that the ultimate responsibility of sorting out problems and facilitating work in the periphery turned out to be the sole responsibility of the DIOs. In Maharashtra, it was reported that the district officials were expected to visit PHCs routinely once a month. PHCs facing problems were paid additional visits by the DHO/DIO or additional DHO as reported by them. By and large, in most States, the visits were unplanned and unscheduled.

With regard to supervisory practices at the district level out of the total 43 units/districts reviewed, only in 17 units officials were found to carry out visits according to schedule. In remaining 26 districts visits were unscheduled. One of the weaknesses observed in these visits was that in general the observations made during such visits were not recorded properly. Therefore the specific items actually checked by the supervisors and suggested instructions could not be verified.

It was found that during such visits, in about 20 districts, officials checked the cold chain equipment, vaccine stocks, performance records, etc. Only in 14 districts, these officials also checked records about disease surveillance. In 12, they did not check any items in particular. Some officials confined their checking to performance only. Out of over 20 districts, officials from only 11 recorded their comments whereas nine did not make any comments in writing.

The number of visits by district officials ranged from one to ten with an average of four visits per month. The reasons for making visits included poor performance, observation of immunisation sessions, verification of reported vaccine preventable diseases, providing needed support to workers, etc. Around 10 DIOs mentioned all the above reasons for their visits, whereas as many as 27 reported poor performance and observation of immunisation sessions as their major concern for visits. On receipt of reports of vaccine preventable diseases, 23 officials made their visits for verification.

As to the possibility of covering all the PHCs in their areas, around ten district officials reported inability on account of lack of time, vastness of the area, or shortage of transport facility.

Only 23 recorded comments of their visit; the other 20 communicated only verbally.

Monthly meetings were reported to be held regularly at all district HQs and the PHC MOs are expected to attend. In 32 districts, the records of these meetings were being maintained, whereas in 11 they were not.

To the enquiry as to how it is ensured that recommendations/suggestions made by them were acted upon, nine districts failed to make any comments, 15 reported that



they try to observe this during field visits, whereas 13 discussed the same in the next meeting and the remaining believed in sending reminders.

Respondents from 38 districts stated that they regularly received report about complications or adverse reactions following immunisation. Officials from eight districts made no comments about the action taken on receipt of such reports whereas 16 reported that they investigate and treat such cases, and four stated that they report such cases to higher authorities. Most of them have discussions with the staff and review the vaccination technique.

In 19 districts, officials judged the performance of their workers by target achievement, and an equal number by going through records and reports. In addition, many of them also stated that they go through records of beneficiaries or observe immunisation sessions for judging the quality of performance of the workers.

In 10 districts, officials found their workers deficient in skills for motivation and IEC activities, whereas 12 found their workers to be weak in maintaining records and reports, and 11 made no comments.

As regards the nature of the support they required for improving the performance under the programme, officials from 14 districts felt that the staff position should be improved, 11 felt the need for increased mobility, and 15 recommended improvement in training. Interestingly, one mentioned the need for scrapping of family planning targets.

Out of 43 units/districts, officers from 24 reported satisfaction with the performance of their workers, while 15 were not satisfied and four made no comments. The reason for satisfaction was that their workers had achieved the allotted targets or had shown improvement over the past year's achievement. Amongst 15 who were not satisfied, the following reasons were given i.e. seven reported failure to achieve targets and poor recording, four reported that outreach areas were not covered, one official reported lack of cooperation, and three complained about the low level of training.

Visits by PHC MOs to the field were also not very regular, one of the reasons being the large area of the block still being given to MOs for supervision. In some States, though the ultimate responsibility of block level supervision was that of the Senior Medical Officer (SMO), the MOs of the new PHCs were also given responsibility in their allocated areas, e.g. in Haryana. The limiting factors as far as supervisory visits were concerned were hurdles in mobility and dependence on availability of office transport. Non-availability of properly functioning transport, inadequate POL budget, lack of proper coordination among different officials for use of transport, use of health programme vehicles for purposes other than health-related activities, etc. were a few explanations received for transport problems. Problems of irregularity and delay in payment of TA/DA were also other constraints uniformly



reported from most States. In Rajasthan, supervision from the district to the PHC could be stated as adequate, but further down, to the subcentre, was unsatisfactory. This was true in many other States also.

Feedback of supervisory visit was reported to be provided through on-the-spot verbal suggestions in most situations, and rarely in the form of written instructions or circulars.

The practice of using check-lists for supervision was generally non-existent. No definite norms for supervision were also found commonly. By and large, feedback and follow-up regarding compliance of supervisory instructions were found to be weak in most States.

Another important feature of supervision was that review meetings were reported as being regularly held at different levels. At the centre, the State EPI officers meet quarterly and the Central Government authorities review the programme's progress and achievements, and problems. Even at the State and district levels, general review meetings are regularly held in which discussion on the Immunisation Programme also finds its due place. Performance reports under the programme, problems and issues are also discussed. Minutes of such meetings are not being maintained by many States. At the PHC level also, meetings are reported to be a regular feature though they are not exclusively for the Immunisation Programme.

Maharashtra State has brought out a check-list for quality and supervision of the Immunisation Programme covering 100 points which are related to the Immunisation Programme. It was further stressed by the State authorities that it is not enough to have such lists made available to all staff, including peripheral staff; it is also important that their use be demonstrated and also facilities be made available for implementing them.

## **INFORMATION SYSTEM**

A system which collects, analyses, stores and presents useful data/information to the programme managers according to their needs, so that they are enabled to interpret and use them for effective planning and management of the Immunisation Programme, is extremely essential.

For the smooth running of this programme, basically four important registers are to be maintained at the peripheral/operational level viz. eligible population/beneficiary register, Immunisation performance register by age and dose, stock register indicating the situation about vaccines and other supplies and the register on Vaccine Preventable Diseases (VPDs). By and large, the States have information on these items maintained at the subcentre level and above. But their quality in terms of content of information, availability of appropriate stationery items like registers, etc. varied from State to State.



A careful review of the information system at the district level showed that in almost all the districts covered under the review, records related to two major items i.e. stock position of different items of supplies and reports on monthly/quarterly progress of the performance, were available. Regarding maintenance of records on other aspects of the programme, there was no uniformity. For example, records related to the cold chain maintenance/temperature records were stated to be available in four districts, vaccine potency testing in 2 districts, surveillance register in five districts, target register in two districts, equipment repair register in one district, NGO's reports in two districts, etc. States like Goa, Maharashtra, Haryana, Punjab and Gujarat, etc. had reasonably well maintained registers at all levels, including the subcentre level. In other States, due to the special emphasis on reviewing the information periodically, more efforts had been reported for improving the situation. However, a few States had faced some problems in the nature of shortage of stationery items for this purpose which made people limit the use of the daily diary for recording information. VPD registers were poorly maintained in many places partly due to lack of awareness about the importance of this information among the staff also.

For reporting under the UIP, the formats and the frequency have more or less been standardized throughout the country. By and large, the States were found to be quite vigilant about timely submission of reports to the concerned higher authorities on prefixed dates, partly because the Central Government demands that these reports reach on the fixed dates for country-wide monitoring. However, despite this, there had been defaulters in a few States.

Interestingly, the number of reporting units including both urban and rural, in the different districts reviewed, ranged from a minimum of five in Bilaspur (H.P.) and Arunachal Pradesh to a maximum of 121 in South Arcot in Tamil Nadu. At the district level, in 20 districts/units, reports were received well in time without any time lag. Among others, the average time lag between the due date of receipt of reports from the reporting units and actual receipt of reports was not more than three days to one week. Only nine units reported that this time lag exceeded more than two weeks, upto even a month. The system of monthly meetings of staff at different levels had helped in reducing the time lag. Likewise, the number of defaulting units in submitting reports from urban and rural areas were not many - with only 3-4 units reporting late. To overcome the difficulty of delayed reporting, officials in 19 districts/units either sent reminders or got them through messengers. Only two units stated that they either reported this to higher authorities or threatened to withhold pay of concerned staff.

To the question as to how the progress was monitored in the absence of such reports, eight units stated that this they did either on the basis of previous reports or



based their assessment on the supply of vaccines. Others (5) stated that they just included such reports which were submitted late, in the next months' progress report.

Reports received at the district level were mostly being scrutinized by Statistical Assistants provided under UIP in 21 units. Other personnel who undertook this responsibility in other districts included the DIO, DHO, Dt PHN, DEE, BCG Team leader, SI, clerk-cum-typist, etc. In 21 units, they did not find any drawbacks or mistakes in these reports, while others reported a number of items like high drop out rates, mistakes in calculations, incompleteness in reports, etc. as a result of scrutiny. Some also claimed to have noticed some reporting units reporting inflated performance figures.

Most such discrepancies or drawbacks were corrected through a feedback system either during the staff meetings or during visits to PHCs by the district officials.

Feedback to reporting units was stated as generally being provided by all units, with the exception of three, mostly during monthly meetings. In ten units, feedback in the form of instructions or corrective suggestions was being given through written communications also. In one unit, explanations were called for in the case of less than 50% achievement of targets.

On further enquiry, 27 district/units reported that they in turn had received regular feedback from the higher authorities regarding the reports submitted by them. Either these reports were discussed in monthly meetings at the State level or were discussed during visits by State officials. Written communications were also received by districts in four States. Comparison of district-wise performance and grading accordingly of districts was being carried out in some States like H.P., U.P., Rajasthan, etc. Most of the time, the higher authorities pointed out the low target achievement or high drop out rate. In some units, reports related to surveillance of VPDs were also discussed e.g. in Haryana, Gujarat, Maharashtra, Tamil Nadu, Meghalaya, etc.

An attempt was made to enquire from district officials regarding the time consumed in maintaining the reports and relevant records under the Immunisation Programme and their perception about the workload in this regard. Only 14 units responded to this. The time consumed, as reported by them, varied considerably, ranging between one day to 15 days a month with the exception of the Statistical Asstt. who is posted full time for this purpose. Most of them stated this to be time consuming work and some complained that the workload is too much on the whole for the Immunisation Programme and, in particular, for the maintenance of records and registers.

One major concern with the information is that the quality of data and its reliability are questionable in many situations in the absence of any regular mecha-



nism of verification. However, this deficiency was reported to be partly at least corrected through the regular and detailed review of the reports submitted by the staff at different levels. In Maharashtra, it was reported that a system of cross verification of the reported information on a random basis has been initiated which would go a long way in improving the quality of information.

Maharashtra, Karnataka, West Bengal and a few other States are reported to have an integrated information system for health in which information on the Immunisation Programme was also incorporated. But in West Bengal, it was found that the Information System which was prepared a few years ago was not updated to incorporate the modifications suggested for UIP by the Centre.

Another important source of information under UIP was the large number of coverage evaluation surveys and disease surveys carried out in many States. Among the districts covered under the review, disease survey for lame children due to poliomyelitis and mortality due to neonatal tetanus had been carried out in four districts whereas no such survey had been carried out in the remaining 38 units.

Vaccination coverage evaluation had been carried out in as many as 23 districts. Most of these evaluation studies had been carried out by independent agencies like MOH (Ministry of Health and Family Welfare), NICD, ICMR and Indian Institute of Health Management Research (IIHMR) etc. The number of such evaluating studies is gradually increasing and some States have begun their own evaluation.

The results of such reports are generally discussed with State authorities at the conclusion of the study. However, of the 23 studies carried out, the results of six had not been received until the time of the National Review of the Immunisation Programme.

It was quite encouraging to note that many States have attempted to use this information for making improvements in their own programmes e.g. Goa, Gujarat, Maharashtra and Tamil Nadu.

## MONITORING

Monitoring of the programme was reported to be mainly dependent on the review of the reports submitted by functionaries at different levels. Generally, it was reported that these reports were carefully reviewed at different levels and corrective actions were suggested/taken. However, in the absence of an effort from the programme managers to carefully and intelligently interpret the data presented, the scope of the review was mostly confined to checking of vaccination performance against targets. No evidence was seen in terms of comparing performance against vaccine consumption. In some States like Maharashtra, Goa, Gujarat, Tamil Nadu, etc. monitoring check-lists had been reported to be used so as to ensure monitoring



of different facets of the programme, including cold chain monitoring, vaccine consumption, material resource availability, quality of immunisation sessions, etc. Tamil Nadu and Gujarat had specially issued instructions to monitor reporting of VPDs also, though these instructions were not being followed by every one.

On enquiry from the districts/units regarding methods adopted for monitoring the programme, out of 41 responses, 29 had mentioned review of performance reports. Of these, varying numbers used, in addition, methods like review during staff meetings (6), field verification of performance (6), vaccine consumption record (3), etc. Out of the 41 districts/units, 21 had stated to be using monitoring check-lists.

As a means for quality control of the cold chain maintenance, OPV samples were expected to be tested for potency. Only nine units claimed some regularity, though not so frequently, in lifting samples, ranging from once a month to once a year. In 14 units, samples were never lifted till the date of survey, while others had a very irregular practice of checking samples.

One significant practice introduced in many States to monitor the cold chain system was the 'cold chain sickness report' which is expected to be submitted regularly by the programme functionaries to different levels. Regular review meetings were being held at PHC, district and State levels at monthly intervals for total health programmes. UIP is only one among such programmes being reviewed. In some States e.g. Bihar, it was reported that decisions were taken to see that one or two State level officials also participate in the district level meetings held by the civil surgeon.

One important observation made in this review was the disparity seen between the immunisation coverage level obtained through the survey and the percentage achievement of allotted targets based on the reported performance, particularly for children's immunisation. This was more or less true in all States with a few exceptions like Karnataka, Goa, H.P., etc. where the differences noticed were marginal. While reviewing the programme at the Central level, such inflated figures for performance in terms of target achievements have been carefully noted and are being discussed with State officials. Such observations have also been related to vaccine requirement and vaccine consumption. In this regard, the need for looking into the age group of children actually receiving vaccination has also been brought to the notice of such State officials. However, awareness about such disparities and their repercussion on the programme's impact was non-existent among officials in many States.

With regard to criteria used by district authorities for assessing the impact of the programme, out of 34 who responded, 13 stated reduction in morbidity and mortality due to VPDs as the single criterion. In another six units, in addition to reduction in morbidity, other indicators like increased immunisation coverage, better

target achievement, better community awareness, etc. were also reported. Better coverage with reduced drop out rates was the indicator stated by two units. One could notice that a number of district officials suggested criteria which were not necessarily indicative of the impact of the programme but rather the indicator of better management of the programme.

On enquiry regarding suggestions for reducing drop out rates, the most common suggestion was related to educating and informing the community i.e. mothers as well as leaders through various media. However, other suggestions put forth by them in varying numbers included increased service contacts through more frequent immunisation sessions, or house-to-house contacts or special campaigns; regularity in conducting sessions; prior intimation to the community regarding sessions, including changes in dates; provision of immunisation cards; good MCH service; better programme management through regular supply, supervision, involvement of the Non Governmental Organisation (NGO), AWW, etc.



## Training For Immunisation

Human resources are essential to effectively carry out various tasks under the Immunisation Programme. Variations and complexities in job responsibilities at different levels of the hierarchy necessitate different types of skills among health functionaries. To develop appropriate skills, a greater input is required into the training of functionaries at different levels.

Having appreciated the need of training for the Immunisation Programme, the Government of India have approached the problem in two ways :

- i. Details of the Immunisation Programme have been integrated in the basic courses for MPWs, Health Assistants, nursing professionals, medical undergraduate, post-graduates of public health and also in various other inservice training programmes for health personnel e.g. 3 months epidemiology course at NICD, Inservice Training Programmes at NIHFWS, etc.
- ii. Exclusive inservice training on immunisation under UIP for both medical doctors and paraprofessionals have been initiated at different levels. These training programmes related to UIP have been tailored according to job responsibilities of different categories of health functionaries.

A series of training programmes to train middle level managers had been organised at NICD, Delhi, since 1980 and such courses are still being given at NIHFWS, New Delhi. These training programmes focus mostly on practical skills and prepare trainees to teach those skills to their subordinates.

Trainees for such courses are senior officers from State and district level health administration and teachers of PSM and Paediatrics of different medical colleges as well as the faculty of HFWTCS. National level workshops have also been organised for State EPI officers and other senior health officials with more focus on management skills. These officials, in turn, are expected to organise training for MOs. of PHCs in their States. This training is of 3-4 days duration. The MOs. of PHCs, in turn, are expected to train the HA(M&F), MPW(M&F) and other personnel at PHC level for two days.



Besides, the Central Government with the assistance of UNICEF has prepared training modules, workers manuals and many other training materials including video cassettes which are made available to the personnel during training.

Refrigerator mechanics and cold chain officers are trained at Pune. Cold chain experts from UNICEF also visit different districts and PHCs in their allotted area of functioning and supervise and check the cold chain equipment as well as provide training to health personnel in cold chain maintenance.

The Government of India give recurring financial assistance to the States to meet the cost of training. Likewise, the cost of national training at NICD and NIHFV is also borne by the Government of India.

The training programme is an on-going process and about 150-180 middle level managers are being trained every year. With 412 districts, 106 medical colleges and 47 HFVTCs, the training need of this level of officers in the country should have been fulfilled, because these courses have been held since 1980. However, because of the large staff turnover, and attrition due to retirement, there always remain a backlog.

The courses given at national level are more or less standardised, involving modular teaching, solving of technical classroom exercises and practical experience in immunisation coverage, evaluation, etc. The stipulated training duration of five days during which four modules are covered generally does not permit the bringing about of any major changes in the training methodology to suit the needs of the job, e.g. introduction of methods to develop skills as trainers.

Recently, under the ICDS programme an integrated training programme for MCH and UIP was introduced, again for middle level managers, in selected States. In the absence of clear training policies in many States, and also frequent turnover and transfers of officials, one common observation at the national level was that many officers were being deputed repeatedly for the same type of training. This not only deprives a new entrant of the chance to get trained but also leads to a situation where those who are getting repeated training remained unmotivated to learn.

Having put in so much effort and financial inputs, it will not only be appropriate but also extremely necessary to evaluate the impact of the training and to see to what extent the trainees have been able to gain knowledge and skills and to utilise the same in their field of operation. This may be done with pre and post training evaluation as is practiced currently, as well as more effectively through follow up after 2-3 years of completion of the training of each batch.

It can be said for every State reviewed that serious efforts are being put in to augment the training process of different categories of functionaries, though the pace of success varies. In some States, it has been moving at a very slow speed whereas in others it is galloping. For example, in U.P., 35 DIOs were reported to have been



trained. MOs and paramedical workers in UIP districts have been trained. Teachers in PSM from various medical colleges and all tutors in-charge have been trained. Besides, in U.P. a special training programme was organised for middle level managers, and teachers of PSM at Lucknow with the assistance of UNICEF. In spite of all these efforts, there is a wide training gap in many districts.

Other States which have well organised training programmes are Haryana, Gujarat, Goa and Kerala. Himachal Pradesh is yet another State which has planned and implemented its training programme very seriously. They have organised ten courses for MOs, and 80 courses for paraprofessional workers. They have also trained 150 people in micro-planning and are contemplating to give 20 such courses in a year.

On the other hand, Bihar had been a late starter and the progress was also slow. Though a contingent of civil surgeons and additional civil surgeons had been trained, there remained a big backlog of DIOs, MOs and paramedicals to be trained. It is for this reason that Bihar has planned to form a core group of trainers involving teachers of PSM, faculty of HFWTC and senior retired health officials to train the various categories of staff.

In between there are States like Orissa which have a large number of untrained DIOs. In Orissa, some of them have been working in this post for the last three years. 438 medical officers and 4528 paramedical officers were reported to have been trained. However, many of those who were involved as trainers were themselves not trained. Punjab and Tamil Nadu have a good training programme for field staff, but in these States, a large number of medical officers were yet to be trained.

Rajasthan was also found to be lagging behind. In both districts reviewed, the training programme for paraprofessionals was arranged during 1987 or before. Since then no other course had been organised to train new entrants in service.

States like J&K, M.P., West Bengal and Assam need acceleration of the training programme to cover up the backlog and train new entrants of all categories of health functionaries.

In Karanataka, on enquiring from the staff, most of them reported having received training. However, further acceleration in training to cover all MOs, district hospital doctors, all paramedicals, ICDS functionaries and urban area health staff was also stated as a prime need.

In the North-Eastern States also, the training component is required to be strengthened. Only a few officers from these States have been trained. A special course for these States may have to be developed keeping in view their peculiar local needs.

With regard to the training status of officials at the district level, it was encouraging to note that out of the 43 units (including urban) covered, 33 officers incharge of immunisation had received training, while 11 (Nagaland, Warangal,



Katihar, West Nimar, Meghalaya, North Goa, Kanpur, Bijapur, Hissar, Gujarat and Tripura) were yet to be trained. A majority of them had received training at Delhi either at NICD or NIHFWS (21), while others had received training either at their own State/district HQ. The duration of training varied between 4-10 days. By and large, the officials were satisfied with the quality of training though some suggested the need for increased practical/field demonstrations.

With a rapid quantitative expansion, quality is generally the first casualty. Enquiries regarding training activities at the PHC level in the States covered under the review revealed that in many places, the MOs at the PHCs were very busy with clinical and family planning work as well as other administrative responsibilities. Their involvement in imparting training to paramedical staff appeared to be marginal and in many places the responsibility was shunted down to the BEE or HA who themselves were not adequately trained.

The concept of District Training Centre (DTC) initiated in Maharashtra merits consideration in this regard. In this, one MO identified for training purpose and assisted by paramedical assistants formed the core group of trainers to provide regular training to field staff who are called at the District Training Centre by rotation.

During the review, efforts were made to assess the level of knowledge among health functionaries by asking specific questions related to the programme. The scores obtained by district officials from the districts under review were as follows:

Score attained	No. of officials
12 (maximum)	11
9-11	12
6-8	13
< 6	2
N.A.	5
	<hr/> 43 <hr/>

Out of 43 officials, 11 could get the maximum score of 12, nearly half of them scored above nine, two scored less than six. Without going into too many details about the observations, the general conclusion one could arrive at was about a gap in knowledge on various crucial aspects of the programmes among the staff and, consequently, the clear need for refresher training for all staff categories. Hence, some mechanism should be developed for continuing education. In Maharashtra, the knowledge of the staff about vaccine preventable diseases, vaccine storage procedures, proper use of syringes and needles, etc. in the rural areas was quite satisfactory. However, in urban areas, it was just the opposite. In U.P., the knowledge level among the district officials and MOs who were trained was of a reasonably high order. Even



the ten ANMs interviewed in one district scored more than 60%.

In Bihar, the knowledge score among health functionaries indicated definite need for additional emphasis on training. Out of a total score of 12, the ANM's average score was 6.4 but the range was 3-8, and for Health Assistant, the average score was 7.6, with a range of 4-12.

To judge the level of knowledge a set of questions were administered to the ANMs working at the subcentres. Questions were developed to test their knowledge, skills and attitudes.

More than 80% of the ANMs responded correctly to questions related to (a) immunisation schedule, technique of immunisation, etc.; (b) storing and proper use of vaccine; (c) sterilisation of instruments, etc. with only less than 20% deficient in this regard. However, a slightly higher proportion of ANMs were found to be deficient when they were confronted with situations requiring some correct decision to be made. For instance, for three specific questions which required a precise decision, the proportion of workers who answered correctly is shown below:

Question	% of ANMs giving correct answer
1. A child comes to you after 20 weeks of the 2nd dose of OPV/DPT. What would you do?	70.3
2. If against the expected number of 10 children for measles vaccination, only 2 reported, what will you do?	72.3
3. Will you give measles vaccination to a child brought to you who has already suffered from measles?	70.0

ANMs were also found inadequate in areas which were related to determination of their workload or job responsibilities. For example, given below are the questions where correct responses were below expectation.

Question	% of ANMs giving correct answer
1. How do you estimate the number of pregnant women in a village?	54.9
2. Which of the vaccine preventable diseases are to be reported to your higher authorities?	66.6

## Knowledge about Contraindications

The ANMs are constantly reminded about the list of contraindications to immunisation for children, during the training course, as well as during monthly meetings, yet it appears that most ANMs nursed their old convictions and were largely guided by them. With reference to this, the question asked was, "If a mother brings a child having one of the following 6 conditions, would you accept child for vaccination or refuse?"

The proportion of ANMs giving different responses is shown below:

Condition from which the child is suffering	% ANMs giving response	
	Refuse	Accept
1. Cough/cold	53.2	46.8
2. Diarrhoea/vomiting	82.4	17.6
3. Fever below 101°F	59.7	40.3
4. Fever above 101°F	93.7	6.3
5. Malnutrition	56.7	43.0
6. Skin disease/boils	69.1	30.9

More than 50% of the ANMs responded in the negative to almost every condition, though only one situation i.e. fever above 101°F warranted refusal.



## Information Education and Communication Activities

One of the important and essential requirements for the success of the Immunisation Programme is to make people aware, get them interested and ultimately motivate them to get their children protected against the six vaccine preventable diseases. To achieve the goal of protecting the target population and reduce the incidence of diseases, the need, on the one hand, is to generate demand and, on the other, to make potent, effective vaccine and immunisation facilities available and accessible. Parents need to be convinced that immunisation is valuable; they should know where and when services are available and should understand when the children should receive the vaccines. Different methods and strategies are adopted to undertake the Information Education Communication (IEC) Services.

To understand the process of IEC in general and related to the Immunisation Programme in particular, the following methodology was used in different States and districts included in the National Review of the Immunisation Programme:

1. An attempt was made to understand the commitment and efforts put in by the State Government and district administration to educate the community and generate demand. This included the study of policy, action plans and operational strategy for IEC, availability and production of educational material, facilities to disseminate messages, deployment of trained manpower, and fiscal commitment.
2. The other area studied was the extent of the reach of messages amongst villagers particularly, opinion leaders from villages or urban communities. They were drawn from the areas/communities which were included in the coverage evaluation. Thus, the respondents were interviewed from cluster/urban sites from each district under review. In all the 35 districts of the major States and four metros, about 1200 leaders from urban slums/villages were included. They were interviewed regarding knowledge of the programme, their involvement in the programme, their perception about health workers' role in keeping people informed, and their level of satisfaction with the services rendered.



3. To understand the level of knowledge, attitude and practice about immunisation, the mothers of children eligible for immunisation, included in the coverage evaluation, were interviewed. Thus, a total of about 9500 mothers were interviewed. Areas for enquiry included their knowledge about vaccine preventable diseases and immunisation schedules, contraindication and problems arising after immunisation, level of satisfaction towards the services provided, and, lastly, the best source from where they received information on immunisation. In the case of those children who were either not immunised or partially immunised, the reasons for this were enquired about through the interview, with particular efforts to explore how far it is due to lack of motivation, lack of information or due to inconvenience in accepting the services.

At the national level, the Central Government has provided the prototype of educational materials with an understanding that State Governments will get them reproduced in the local language. UNICEF had provided a number of tin plate hoardings with messages about individual VPDs and vaccination, to be distributed among all States. They have also supplied folders giving information about vaccines and vaccine preventable diseases.

The IEC wing under the Ministry of Health and Family Welfare is responsible for the production and distribution of educational materials related to family welfare, including immunisation, to the different States.

Audio-visual aids and materials have also been supplied. They include 16 mm projectors, two-in-one transistors, public address system, films, video cassettes, TV etc. Media like radio and TV are also giving slots on immunisation and vaccine preventable diseases during prime time.

The IEC division at the Centre also monitors the progress of IEC activities in the different States.

### **Situation at State Level**

In all the States, the newly created IEC cells headed by State level media and education officers are engaged in procuring, producing and distributing educational material on family welfare, including the Immunisation Programme. IEC activities related to UIP are an integral part of the total family welfare programme. No organization to run the IEC programme exclusively for UIP, was reported in any State. Similarly, at the district level, the positions of district media and education officers have been created. IEC cells, at both national and State levels, work independently of the already existing Health Education Bureaus.

In each State, radio and TV are giving enough coverage on UIP in the local language. Each State was reported to be producing educational materials on immunisation. They included stickers, posters, pamphlets, calendars, folders, etc.



The materials received from the Central Government or produced at State level were being distributed proportionately to all districts covered under UIP. The district administration, in turn, distributed the materials to the Primary Health Centres and subcentres. Within the limited resources, the materials were distributed to all PHCs and subcentres. Besides production of material, discussions on immunisation in orientation training camps, women's education camps, Mahila and Yuvak Mandals, formed the important methods of reaching the people in many States. In some States such as Gujarat, group meetings are organised in the villages on the day the immunisation session is conducted. Education or information on immunisation was invariably given whenever exhibitions, and special camps were organised for MCH or family planning.

In most States, health workers had been provided with flash cards and easy to carry plastic folders for educating the people. Film shows were one of the common methods for IEC.

The State of West Bengal had developed a good IEC division at the State HQ. At the district level, there is one DEMO assisted by deputies and regional health educators. This IEC division has brought out booklets, films, posters, etc. on UIP. Unfortunately, the mass media officers have not been trained nor were involved in UIP. In Orissa, besides the usual modes of communication, the State had developed and incorporated immunisation messages in calendars, greeting cards and messages for immunisation were printed on about one million post-cards.

Gujarat also has gone ahead in its efforts for IEC. Production of publicity material, involvement of village leaders during immunisation sessions and Orientation training camps, linkage with literacy mission are only a few of the many activities carried on by this State.

In Goa, there are two State level coordinating committees viz.

1. State level mass education and media coordination committee with the State Health Secretary as Chairman; and
2. Inter-media publicity coordination committee.

They identify needs and plan for providing necessary support through field publicity, All India Radio, the Press, etc.

In U.P., a substantial amount of publicity material has been produced. IEC gets support from the India Population Project Phase II through which selected districts have been provided 56 colour TV sets to training centres, and 1600 TV sets for the community.

In the State of Maharashtra, a Community Need Assessment (CNA) survey was carried out about 4 or 5 years ago. Results received from the CNA study had stimulated the Government to allocate more resources for IEC. Every district has a DEMO, but generally he is a medical doctor with a Diploma in Health Education (DHE). Mass media material for family welfare, including for UIP, is being produced



at State and divisional levels.

In all States, the allocation of funds for the total IEC programme was limited and did not permit production of material to reach every nook and corner of the State. In almost all the States, IEC has been a late entrant into the programme components. Only during the last few years it has been given some prominence.

When officials, at both State and district levels were asked to mention three major problems in relation to IEC activities for UIP, a majority of them reported as follows:

1. SHEB and IEC have not yet become a priority need of the States. Besides, there were shortages in many positions and staff facilities created to run this important unit.
2. In most places, there were insufficient funds to meet the growing demand of educational material on different aspects of health programmes, including immunisation.
3. There is need to train persons involved in media and education about UIP, so that they may be able to undertake more effective IEC activities and produce more relevant educational material.
4. Lack of transport facilities was another important constraint mentioned by many.

Though every State has given a long list of various educational materials to be procured, produced, and various methods employed for disseminating the messages, for the reasons mentioned above, it has not been possible to reach these to the clients in an effective way and make a remarkably perceptible change in the knowledge or behaviour of the community.

An Additional Director of a State very aptly put it: "We never gave any importance to health education and used to earmark only a petty sum for the programme. Only after getting feedback on the Community Need Assessment survey conducted in the State, we realised how wrong we were in neglecting this important area. Since then, gradually more funds are being allocated and a place of eminence is being given to IEC".

## **Community Perception**

Interviews of the village and urban slum leaders revealed that awareness regarding immunisation is gradually building up, though the pace is not fast. It is no longer uncommon to find at least few people, including women, in every village who have some basic information about injections or medicines, as put by them, given to healthy children to protect them from some diseases. However, the messages are not strong enough to translate this knowledge into behaviour and to motivate people to seek immunisation on their own, nor have the messages been widely spread so as to



initiate any discussion on this subject in the community at large. Though many know that something is being done for preventing diseases, only a few could name the specific diseases against which immunisation is being given.

### **Village Leaders Opinion**

In 1036 rural clusters, data on the general profile about village and information from village leaders about the Immunisation Programme were obtained. These clusters were spread over 35 districts of the major States and eight districts in the seven North-Eastern States.

It was observed that 521 clusters (51.27) were in villages where subcentres were located, whereas 496 (48.7%) were away from the subcentre, the distance ranging from less than a kilometer to four km. Only 3.5% of the villages were located at a distance of four km. from the subcentre, 16.7% were located within three km. whereas the rest were within two km.

Births and deaths registers were maintained in 71% of the cluster villages, whereas in the remaining ones, no such records were maintained. In 32.3% of the clusters, Panchayats were mainly registering the vital events, followed by the Chowkidar in 26.4% of the cluster villages. In 13% of the villages, the HW(F) and in 7%, the HW(M) also maintained records of vital events whereas only in 4.5% of the villages, the VHG or AWW undertook this responsibility.

In a majority of the villages (76.2%), most of the deliveries were reported to be conducted at home; only in 16.8%, the deliveries were being conducted in the hospital and in 6.3%, at the health centre. The subcentres had a very insignificant role, as in only 0.7% of the villages, the deliveries were reported to be conducted in them. This is not surprising because the subcentres do not have facilities to conduct deliveries.

In 55% of the villages, the health staff and trained birth attendants conducted most of the deliveries. In the remaining 45%, the deliveries were conducted either by untrained dais or relatives.

As reported by the village leaders, in 14.1% of the villages, the HW(F) never visited, in 20.8% the visits were irregular and in 39%, the villages were visited weekly, 14% monthly and the remaining areas, once a fortnight.

On enquiry regarding the place where the beneficiaries were immunised, in around 43% of the villages, the beneficiaries were reported to be immunised either at the subcentre (34%) or PHC (9%) whereas 23% failed to specify this. According to 16.3% of the leaders, the beneficiaries received immunisation at their doorsteps. Only in 7.5% of cases, Panchayats were used as the venue for immunisation services. Likewise, according to only 9.7% of the leaders, schools were used as the venue for immunisation.



Of the total village leaders interviewed, 93.5% opined that pregnant women and infants should be timely and fully immunised. Yet, amongst village leaders who had infants and pregnant women in their homes, only in the case of 63.7% were infants fully immunised. In the families of 16.2% of the leaders, the infants had received no immunisation. Likewise, in the families of 30.6% of the leaders, the pregnant women had not been immunised. Only in the case of 37.8%, the women were immunised. This situation speaks loudly of the gap in information about the need of the service and its acceptance.

Regarding the enquiry as to whether immunisation sessions were held on the due date, 79.9% of the respondents replied in the affirmative whereas 20.1% reported that occasionally the sessions were postponed. For example, 17 out of 39 (43.5%) respondents in J&K reported irregularity. Similarly, about 29% of the respondents in the State of Maharashtra and 34% in Andhra Pradesh complained about sessions not being held on the announced dates. However, prior information about postponement of sessions was received only according to 43.4% of the leaders, whereas no information was given in this regard as stated by 56.6% of them e.g. out of 13 respondents in Bihar as many as 10 (76.9%) complained of no prior information. Similarly, 7 out of 12 (58.3%) in Himachal Pradesh, 21 out of 29 (72.4%) in J&K, 10 out of 16 (62.5%) in Kerala, 23 out of 34 (67.6%) in Maharashtra, failed to receive any information about postponement.

Postponement of sessions was not reported to be very frequent. While 47.6% reported that only once such a thing had happened in their villages, 16.7% said postponement took place three or more than three times and 17% did not comment.

It was noted that 56.2% of the respondents were approached by health workers for help in immunisation services, whereas in the case of 43.8%, no such contacts were made.

About the enquiry regarding the topics discussed by health functionaries with the leaders, 59.8% confirmed that the Immunisation Programme was discussed with them, whereas 40.2% answered in the negative. 31 out of 58 (53.4%) in U.P., 15 out of 31 (48.3%) in Andhra Pradesh, 32 out of 56 (57.14%) in H.P. and 37 out of 51 (72.5%) in J&K reported that no one had discussed the Immunisation Programme with them.

The HW(M) and HW(F) were the key persons who discussed the Immunisation Programme with the leaders. In the case of 41.2% of the leaders, the HW(M) and in 36.9% HW(F) discussed the Immunisation Programme. The role of the AWW and HG was marginal; only 6% of respondents had been informed by them i.e. the HG (3%) and AWW (3%).

The need for immunisation and its schedule were the major areas discussed by the health staff. More than 80% of the respondents confirmed that these areas had



been discussed with them and 61% reported that complications due to immunisation were discussed with them.

Only 6.6% of the respondents stated having seen either a case of poliomyelitis or mortality due to neonatal tetanus during the past six months from the date of enquiry. Of these, 58% did not take any action, whereas the remaining 22.8% reported this matter either to the doctor or others like the health guide or health worker.

Only 56.4% of respondents had seen posters on immunisation in and around their village while 43.6% answered in the negative. 34/55 (61.8%) in Assam, 34/60 (56.6%) in Bihar, 25/50 (50%) in J&K and 35/57 (61.4%) in U.P. did not see any posters in their villages.

On enquiry, 62.3% of the village leaders stated having attended or observed one or more immunisation sessions in their village whereas 37.7% had no such experience. By and large, most of them expressed satisfaction about the way the sessions were held and confirmed that the vaccine was kept on ice, the HW(F) washed her hands, and used separate needles, the immunisation cards were filled and given and the mothers were informed about the due date for the next visit, the side effects likely to occur after immunisation, etc. However, 25% reported that neither separate syringe and needle was used nor were immunisation cards filled, 32.7% reported that no cards were being distributed and according to 30.9% of the respondents, partially consumed vials were not destroyed. To quote a few, 13/23 (56.5%), in J&K, 7/15 (46.6%) in Bihar, 7/21 (33.3%) in Assam and 7/12 (58.3%) in Rajasthan stated that separate needles were not used. Likewise, 9/23 (39.1%) in A.P., 17/32 (53.12%) in Karnataka and 12/33 (36.3%) in Tamil Nadu reported that workers were not filling cards. Similarly, 20/31 (64.5%) in Karnataka, 17/28 (60.7%) in M.P., leaders reported that the workers did not distribute immunisation cards. Further, 7/10 (70%) in Bihar, 5/8 (62.5%) in Goa, 8/19 (50%) in Gujarat, 2/4 (50%) in H.P., 10/20 (50%) in Punjab and 11/18 (61.1%) in U.P. leaders reported that partially consumed vials were not destroyed at the end of the session.

According to 44.7% of the leaders who had witnessed immunisation sessions, the AWWs were present during the session. Similarly, the presence of the health guide and trained birth attendant was confirmed by 42.7% and 37.2% respectively. Village leaders comprising 17/24 (70.8%) in Andhra Pradesh, 26/30 (86.6%) in Bihar, 27/37 (72.9%) in Punjab, 27/30 (90%) in Rajasthan reported that no AWW was present during the session. Among village leaders who had witnessed the presence of these workers, 40.5% believed that health guides participated in different activities about immunisation e.g. they informed mothers, persuaded beneficiaries to accept service and reminded them of date of immunisation, allayed fears, helped in organising the session and in bringing the beneficiaries to the site, etc.



Only about 33% of the leaders felt that the TBA performed these tasks. However, in the opinion of only 25% of the leaders, these workers (HG - AWW) treated complications following immunisation and only 30% stated that they reported about the complications or VPDs. Only less than 20% of the leaders felt that the TBA performed these tasks. In general, 66.4% of the village leaders expressed satisfaction about the services by health workers (MPW); of these, 15.8% were highly satisfied. On the other hand, 27% found the services not at all satisfactory. The proportion of dissatisfied respondents was 38/59 (64.4%) from Bihar, 25/58 (43.1%) from J&K, 29/52 (55.7%) from Rajasthan and 28/60 (46.6%) in U.P. The dissatisfaction among the leaders from other States was of a low order.

Thus, to summarize, there was general awareness among villagers about the Immunisation Programme. Nearly 20-30% of the village leaders who took an active interest in the total village development programme were also lending meaningful support and tried to ensure that children were immunised. 50-60% were mere observers and did not take any active interest but stated that they would be willing to help if asked. For the rest, it was a very low priority programme and they found it hard to give any time to this programme. In nearly 45-60% of the villages, non-formal leaders, lady school-teachers and elderly ladies in the village were found to be better informed and influenced than the formal leaders. In one village in U.P. Gram Panchayat, the Pramukh very honestly said, "Sir, I do not know anything, better ask my wife".

In the tribal population, the Gaon Gurah (village head) played a very significant role. During interviews in Arunachal Pradesh and Nagaland it was found that Gaon Gurahas were fully conversant about the happenings in their villages. Once they agreed to a programme, it was accepted by the villagers without any questions. Whenever and wherever the help of the Gaon Gurah had been taken by the health personnel, acceptance of immunisation services had been very high.

### **Mothers' Perception about the Programme**

From each district/unit covered under the National Review, 210 mothers were interviewed in each. This group included mothers of fully, partially and unimmunised eligible children. The total number of women included from all States the under review was about 9500.

The questions addressed to the mothers were related to :

1. knowledge about the names of diseases against which immunisation is given, number of doses to be given, appropriate age by which vaccination should be completed and advantages of immunisation;
2. contraindications for immunisation and problems after vaccination as perceived by them and the type of attention received;



3. level of satisfaction with provision of services;
4. the best informer about the programme as perceived by them and the ultimate source which influenced them to accept vaccination;
5. mothers' impressions about the contribution of the Immunisation Programme in improving the general health services provided.

## Knowledge

In five districts of Goa, Haryana, Himachal Pradesh, M.P. and four Metropolitan Centres, nearly 75% of the mothers could mention most or at least one vaccine preventable disease and only less than 25% of the respondents could not name even a single vaccine preventable disease. At the other extreme, in States like Assam, Bihar and Bijapur district of Karnataka, more than 50% of the respondents could not name any single vaccine preventable disease.

In different districts of Gujarat, Maharashtra, Rajasthan, J&K, etc. negative response for knowledge of vaccine preventable diseases ranged between 30-40%. Even within the same State, responses in two districts varied. For example, in the State of Haryana in district Bhiwani, only 18% of the women did not know about any disease, whereas in Hissar there were as many as 35%. Similarly, such variations were perceptible in H.P., Karnataka, etc.

In a majority of States, among the respondents who knew about VPD., poliomyelitis ranked as Number one. Other disease like tuberculosis ranked Number one in Kerala whereas tetanus and diphtheria were more known in Assam. About 10-15% of the respondents in all States could name three to four VPD. for which immunisations are being provided. Measles was amongst the least known disease for which immunisation is available.

To the question regarding the total number of doses of poliomyelitis vaccine required, about 20-50% from different districts could not answer since they did not know. They were generally the same who could not name any vaccine preventable disease. Amongst the rest, nearly 50-70% of respondents in all the districts were conversant with the fact that three doses are required. Only a small group of women (3-5%) felt that more than three doses are required, whereas 10-30% felt that one to two doses of polio vaccine are enough.

Similarly, to the question regarding age by which vaccinations should be completed, amongst those who knew about VPD., 40-60% stated that vaccination should be completed by one year of age. However, 15-35% of the women believed that vaccination could be completed even after one year of age.

To the question regarding 'Why a child should be immunised', again amongst those who knew about VPD, 40-60% in all the districts believed that it kept the child healthy, whereas the others were passive followers i.e. they get their child immunised because others were doing so.



## Problems and Contraindications

Nearly 50-70% of the respondents whose children had received immunisation had some kind of problems. The common problems faced were mild fever, pain and tenderness and only 3-4% from some districts complained of abscess formation. No one complained about any serious untoward reaction.

Mothers were questioned about whether they will get their children immunised if they had fever or were malnourished. Nearly 30-50% from all districts failed to give any response. Amongst the others, nearly 50-70% stated that they will not get their child immunised during a bout of fever. 30-50% considered malnutrition as a deterrent for immunisation. Only 15% in each of the districts did not consider these conditions as contraindications and were willing to get their children immunised.

## Level of Satisfaction

Around 10-30% of the respondents in different districts did not express any opinion about their satisfaction with immunisation services. Amongst others, between 50-75% expressed satisfaction about the behaviour of the staff. However, as regards the level of satisfaction pertaining to follow up, about 10-40% expressed dissatisfaction, e.g. in district of Dibrugarh, 39% were not satisfied. By and large, a majority of the respondents were satisfied with the information provided regarding immunisation. Surprisingly, in Dibrugarh, as many as 80% respondents could not answer. Consequently, positive responses for satisfaction were as low as 4.3%. Similarly, almost 100% in Dibrugarh and 75% in Nowgaon complained that no one attended to the problems following immunisation of the child.

In most of the districts, people possessed a radio. In some States like Assam, Goa, Gujarat, Haryana, Himachal Pradesh, about 30-50% of those who possessed a radio had heard programmes related to immunisation. In other States like Bihar, Gujarat, Madhya Pradesh, etc. the percentage of people possessing a radio was less than 25-30%. Not more than 4-5% respondents in most of the districts possessed a TV and had seen some IEC programme related to UIP. However, exceptions were the U.P. urban area, Singhbhum in Bihar, Goa and the four metropolitan cities of Delhi, Bombay, Calcutta and Madras where nearly 30-50% possessed a TV. Out of them, 60-70% had at one time or another, watched some information regarding immunisation.

Nearly 15-50% of the people in various districts had not seen any poster in their village related to immunisation.

## Source of Information on Immunisation

Health workers were reported to be the best source of information. Nearly 40-60% of the respondents from all the districts ranked the Health Worker as the No. one



as source of information. The second best source of information in the rural areas was stated to be neighbours/relatives, whereas in urban area, TV was ranked as the Number two source of information. Radio/TV was ranked at a lower rate amongst villages. Not more than 1-2% of the respondents even in the metros considered newspapers as a source of information.

Similarly, the health worker was considered the ultimate source of influence for the people to accept immunisation. Nearly 50-60% of the respondents accepted immunisation on the advice of the health worker. However, in urban areas, around 20-35% got their children immunised on their own without being told to do so by anyone. As said earlier, in rural areas, many respondents had gone for immunisation passively when they saw some other members of the community accepting the same.

It will be educative to illustrate the efforts put in for social mobilisation and demand generation in the city of Madras by Madras Corporation, and in Patna, the capital town of Bihar.

### **A Proposal for Intensive Communication Camps in the City of Madras**

One-day orientation training for medical personnel, paramedical and school teachers will be undertaken in April/May, 1989 to align up methodically, the communication camps to be launched in the 3rd week of June, 1989 when the schools will start functioning. There are 365 Corporation Schools in the city and the school children will spread the uniform message on immunisation to the public at large by participating in the rallies; Wednesday being the Immunisation Day, the rally will be on a Tuesday and in a sustained manner for a period of time, brochures, placards, banners to be used in the rally, etc., have been designed with the help of UNICEF and the private sector companies, banks, IOC, etc. will all be involved for support; a few companies (6) and voluntary agencies (8) have already come forward to help. Popular companies like Parrys, Britannia, Coca Cola, Nutrine, Parle, and cigarette companies, etc. will be contacted to encourage the school children in their rallies at vantage points and these will be undertaken by the Corporation of Madras in June; evaluation of the coverage before and after will be ideal to assess the impact of this plan on demand creation. The Rotarians of Madras, who are committed to the Polio Plus programme are of great help and encouragement and already 17 such clubs are adopting the concerned areas in the city and working in coordination with Corporation Health Posts by way of publicity, enumeration, conducting vaccination sessions, etc.

### **Organisation of Camps in the State of Bihar**

Special Immunisation Programmes are being run with the cooperation of voluntary organisations. For this purpose, one day in a month is fixed well in advance. Similarly, for the 2nd and 3rd round, the immunisation dates are fixed. Advance

publicity is given in the area regarding these camps about the date, time and place of the camps. Various voluntary organisations viz. IMA, Rotary Clubs and the Ramakrishna Mission are playing an important role in the successful implementation of UIP. The IMA played a vital role in the implementation of the Patna urban immunisation drive, which could mobilise vast political, administrative, professional and media support and the success of which led to similar efforts in other urban areas viz. Gaya, Bhagalpur, Dhanbad, Begusarai, Mokama and Darbhanga. A significant feature of the Patna experiment was the successful networking of around 700 private practitioners under the banner of the IMA and the creation of 37 permanent immunisation centres at the rate of one each per municipal ward. Similarly, the Rotary Club of Patliputra colony in Patna has systematically enumerated 70,000 population and has started immunisation work from April 1, 1989. Government health staff are available with vaccines on the appointed dates and places where these special immunisation camps are organised by voluntary organisations. Sufficient propaganda is made before the organisation of these camps.



## Programme Performance

### VACCINATION COVERAGE

A total of 35 districts in 18 major States, 8 urban units i.e. 2 units each in 4 urban metropolitan areas and 2 units in the pooled group of North-Eastern States (total of  $45 = 35+8+2$  Units) were covered in the coverage evaluation using the 30 cluster sampling method. The findings pertaining to 43 units excluding the North-Eastern States are presented initially.

#### Full Immunisation with OPV, DPT and BCG

For complete protection, it was considered essential for the beneficiary child to receive three doses each of OPV and DPT and one dose of BCG. In the 43 study units covered during the review, there was considerable variation in the proportion of fully immunised children in different units in different States (Appendix XIV). The percentage of fully immunised children with three doses each of DPT and OPV and one dose of BCG ranged between 4.3% in Katihar district of Bihar and 83.6% in Goa.

#### Full Immunisation with OPV, DPT, BCG and Measles

The proportion of infants fully immunised with four vaccines, including measles, was the lowest i.e. 2.4% in Katihar district in Bihar and highest i.e. 54.6% in one unit in Delhi ( Appendix XIV).

From Table 12, it may be clearly seen that, none of the units could reach the goal of fully protecting 85% of infants. Only four units viz. Goa, Quilon (Kerala), Madras (one unit) and Bombay Corporation (one unit) had achieved more than 75% coverage of children with all the three vaccines. At the other end of the scale, eight units, viz. two in Andhra Pradesh, Nowgaon (Assam), two units (Bihar), Bharatpur (Rajasthan), Kanpur Dehat in U.P. and Murshidabad (W.B.). could not reach even 25% coverage level. Only in two units, viz. Goa and one unit in Delhi, more than 50% of eligible children could be protected with all the four vaccines. In as many as 16

units only less than 25% of children were found to be fully immunised with four vaccines

**Table 12**  
*Distribution of Districts/Units According to Percentage of Fully Immunised Children*

Percentage immunised	Without measles	With measles
< 25	8	16
26-50	15	25
51-75	16	2
76-85	4	-
86 +	-	-
<b>TOTAL</b>	<b>43</b>	<b>43</b>

### Availability of Immunisation Cards with Beneficiaries

While conducting the coverage survey, the history given by mothers regarding immunisation was verified from the immunisation cards wherever available. In the case of those who failed to produce immunisation cards, an attempt was made to elicit convincing information about vaccination given and only those who could give satisfactory information were listed as immunised, otherwise, they were treated as not immunised (Appendix XV).

Regarding immunisation cards for children, information could not be ascertained clearly from eight urban and three district units. Similarly, for mothers, information about immunisation cards was not available in 10 (three urban and seven districts) units.

Appendix XV shows the percentage of eligible children and mothers for whom immunisation cards were available. In the case of children, North Goa district in Goa State showed the maximum number of cards retained/issued (81.43%) to the children. States like Rajasthan, Bihar, Tamil Nadu, Karnataka, Haryana, Assam showed a low percentage of beneficiaries with cards i.e. less than 30%. In 10 districts, more than 50% of infants had immunisation cards. These cards assure the proper dosage at proper time to the eligible children. In the case of pregnant women, (for tetanus toxoid) the percentage with cards was very low, i.e. below 50%.

### Immunisation Level in Two Groups of Districts

The districts which were taken up early in 1985-87, would, by now, have established the infrastructure including adequately trained manpower and streamlined the supply and operationalisation of the cold chain equipment, etc. They would naturally be expected to perform better in immunisation coverage than the districts



which were taken up later. Achievement of immunisation coverage was separately examined in the two groups of districts viz. those which were included under UIP during 1985-87 and those which were included in 1987-88 (Table 13). The eight urban units were excluded for this purpose because the specific dates of their inclusion under UIP could not be differentiated between the study units and some were not yet covered under UIP. Of the 18 units in which UIP was initiated in 1985-87, the number of units which could achieve more than 50% coverage with three vaccines (DPT, OPV and BCG) was seven. Similarly, out of 17 units taken up in 1987-88, seven units could achieve same extent of coverage. However, two districts out of seven taken up in 1985-87, could reach the level of 75% and above. In those units taken for UIP in 1985-87, the number of units with percentage coverage over 50% with four vaccines, including measles, was two, whereas in the districts taken up later, there was none.

**Table 13**

*Distribution of two Groups of Districts Taken up for UIP in 1985-87 and 1987-88 According to Immunisation Coverage for Different Vaccines*

Percentage Immunised	1985-87		1987-89	
	Without measles	With measles	Without measles	With measles
<25	4	7	5	8
26-50	7	10	5	9
51-75	5	1	7	-
76-85	2	-	-	-
86 +	-	-	-	-
<b>TOTAL</b>	<b>18</b>	<b>18</b>	<b>17</b>	<b>17</b>

In the districts taken up earlier in 1985-87, the proportion for fully protected children ranged between 4.3% in Katihar and 83.6% in Goa (i.e. without measles), and for four vaccines, including measles, the proportion ranged between 2.4% (Katihar) and 52.3% in Goa (Appendix XVI and XVII).

Out of the 17 States (excluding Goa), the immunisation coverage was compared between these two groups of districts within each State. It was revealed that the districts taken up in 1987-88 showed better performance as compared to those where the UIP programme was launched earlier, viz. Andhra Pradesh, Bihar, Gujarat, H.P., Karnataka, Maharashtra, Orissa, Rajasthan and Punjab.

## Immunisation Status with Reference to Four Different Groups of Vaccines

Findings on immunisation status for four different groups of vaccines viz. DPT, OPV, BCG and measles in 43 units is presented in Appendix XVIII. Distribution of districts showing percentage coverage for different groups of vaccines is shown in Table 14.

**Table 14**

*Districts Showing Coverage of Four Different Groups of Vaccines*

% coverage	No. of Districts			
	DPT	OPV	BCG	Measles
<25	2	2	4	11
26-50	5	6	10	21
51-75	25	24	21	11
76-85	6	6	5	-
86 +	5	5	3	-
<b>TOTAL</b>	<b>43</b>	<b>43</b>	<b>43</b>	<b>43</b>

### DPT

Out of the total 43 units studied (35 districts and 8 urban units), in 36 units more than 50% of the beneficiaries had received all three doses of DPT. Of these, five units viz. Bhiwani (Haryana), North Goa (Goa), Pune (Maharashtra) and two units in Madras Corporation had achieved over 85% coverage; two districts viz. Nowgaon (Assam), Katihar (Bihar) had reached coverage level less than 25%. The coverage level for DPT ranged between 20% in Assam Nowgaon to 90.47% in Goa.

### OPV

In the case of OPV, in 35 units more than 50% of the beneficiaries had received three doses of OPV. Five units, viz. North Goa (Goa), Bhiwani (Haryana), Quilon (Kerala), and two units in Madras had achieved more than 85% coverage level. In two districts, Nowgaon (Assam) and Katihar (Bihar), the coverage was very low i.e. less than 25%. The coverage level for OPV ranged between 19% to 89.5%.

### BCG

In 29 units, more than 50% children had received BCG vaccination. Of these, in three units, viz. Quilon (Kerala) and two units in Bombay Corporation, the coverage was over 85%. Coverage level of less than 25% was observed in four units viz. Nowgaon (Assam), Katihar and Singhbhum (Bihar) and Kanpur Dehat in U.P. The coverage level ranged between 15.71% to 91.9%.



## Measles

Coverage for measles was found to be rather low in all the study units, the range being between 2.4% in Katihar (Bihar) and 59% in Kasargode (Kerala). Of the total units, 32 had achieved less than 50% coverage level and in 11 units, it was less than 25%. Even in urban units, the coverage ranged between 10.40% in Calcutta to 55.1% in Delhi.

## DROP-OUT RATES

### DPT

Drop-out rates for immunisations, OPV 1-3, and DPT 1-3, were calculated in all the units. It was found that out of the 37 units where this data could be compiled, the drop-out rate for the third dose of DPT ranged between 5.9% in North Goa to 39.2% in Katihar (Bihar). Drop-out rate of 10% or less was observed in 11 units in Goa, Gujarat, Haryana, Kerala, Maharashtra, Orissa, Punjab, Calcutta and Bombay (Appendix XIX). Except for 3 districts i.e. Bharatpur (Rajasthan), Katihar (Bihar), Kanpur Dehat (U.P.), where drop-out rates were more than 30%, in the remaining 26 districts, the drop-out rate ranged between 10-30%. In four States, a lower drop-out rate was observed in districts which were taken up for UIP in 85-87, whereas in another four States, this was observed in districts which were taken up later.

### OPV

Drop-out rates for the third dose of OPV ranged between 6.1% in Sangrur (Punjab) and 37.74% in Kanpur Dehat (U.P.). Drop-out rates of 10% or less were seen in 9 units in the case of OPV in the States/urban areas of Goa, Bhiwani (Haryana), Quilon and Kasargode (Kerala), Pune (Maharashtra), Sangrur (Punjab), Bilaspur (H.P.), Panchmahal (Gujarat) and one unit in Madras Corporation. Drop-out rates between 11-20% were seen in 21 units, 21-30% in 6 units, over 31% drop-out rates were seen in six units viz. Katihar (Bihar), Bharatpur (Rajasthan), Kanpur Dehat (U.P.), Nanded (Maharashtra), Nowgaon (Assam) and Singhbhum (Bihar). Drop-out rates of less than 10% were seen in 4 districts taken up for UIP earlier in 1985-87 and three districts taken up later in 1987-88. In Kerala, in both districts, the drop-out rate for OPV was 10% or less



## Source of Immunisation

### BCG

With reference to the source of immunisation for BCG, in six out of 43 units, the information could not be ascertained. Among the rest, in five districts and seven urban units, hospitals were stated to be the main source. The percentage projected for BCG by hospitals ranged between 34.7% in Hissar (Haryana) and 82% in one unit in Bombay (Appendix XX).

Health centres were reported as the major source of immunisation in 18 units, the proportion ranging between 31.4% in West Nimar and 89.6% in H.P. Outreach services was stated as the main source for five units i.e. Katihar (Bihar), Bijapur (Karnataka), Mandla (M.P.), Nanded (Maharashtra) and South Arcot (Tamil Nadu). Heavy reliance on outreach services might necessitate special care on maintenance of the quality of vaccine and sterilisation practices. Heavy dependence on hospitals might indicate inadequate efforts from the health centres to reach the people or people's preference of hospitals for such services. Thus, in Warangal (A.P.) and Sangrur (Punjab), more than 50% of the beneficiaries were covered by hospitals. However, the majority of the districts had coverage from health centres including their outreach services. In all the seven units in urban areas/Corporations, 52-82% of the beneficiaries were covered by hospitals and in Delhi a good proportion i.e. 35.95%, in addition, were covered by health centres. Anganwadi centres were found to be used for immunisation by only a very small proportion of units i.e. eight, the proportion ranging between 0.6% to 23.9%. Bhiwani (Haryana) had nearly 23% of the beneficiaries covered by Anganwadi workers (AWs). Among urban metropolitan cities, Calcutta also relied upon the AWs for immunisation.

### DPT

Of the 43 units, information on the source of DPT immunisation was not ascertained for seven units (six districts and one urban unit). In 24 units, the major source of DPT was reported to be the health centre, the proportion among these ranging between 32% each in West Nimar (M.P.) and Quilon (Kerala) and 82.2% in Bilaspur (H.P.). Outreach services as the main source was reported for six units, the range of proportion being between 31.4% in Mandla (M.P.) and 65.5% in Nanded (Maharashtra). A high proportion of beneficiaries getting protected for DPT from private sources was reported from four units i.e. Quilon in Kerala (32.6%) Coimbatore in Tamil Nadu (38.9%), 41% in one unit in Bombay and 39.03% in one unit in Madras. In Quilon (Kerala), equal proportions had received DPT from health centres and private sources. Only seven units depended on Anganwadis as the source for DPT immunisation. By and large, in almost all the units, the major source of DPT



remained the health centre alongwith its outreach services, except in two urban units in Calcutta (Appendix XXI).

## **OPV**

Information on the source of OPV was ascertained from the reports for 36 units. In a total of seven units (five in urban Corporation and in two districts) the major source was found to be hospitals. In 19 units, the major source was reported to be the health centres. The highest proportion stating hospitals as the source was 60% in one unit in Calcutta, whereas for health centre as the source, the highest proportion was 84% in Bilaspur (H.P.). Outreach services was the main source of OPV for six units, the maximum proportion being 63.7%. In four units, viz. one urban unit each in Bombay and Madras as well as Warangal (A.P.) and Coimbatore (Tamil Nadu), the beneficiaries availed of OPV services mainly from private practitioners, the highest proportion being 41.2% in Warangal (A.P.). The AW was used as a source of Immunisation for OPV in six units only (Appendix XXII).

## **Measles**

In 32 units, the information on the source of immunisation for measles could be ascertained. Hospitals as the most common source was reported from only two units i.e. Bhiwani (Haryana) and one unit in Madras Corporation. By and large, the vast majority were rendered services from the health centres i.e. in 21 units the proportion being between 33.3% in Hissar (Haryana) and 83% in Sambalpur (Orissa). Outreach was the main source for seven units, the highest proportion being 73% of the beneficiaries. In 10 units, Anganwadis also served as the source of measles immunisation, including in four urban units (Appendix XXIII).

## **Immunisation Coverage of Pregnant Women**

Immunisation coverage of pregnant women with tetanus toxoid was studied in 43 units. The extent of coverage by two doses of TT/booster among mothers ranged between 22.38% in Kanpur Dehat (U.P.) and 97.6% in Quilon (Kerala) (Appendix XXIV and Table 15). Distribution of units by percentage coverage for TT indicated that out of 43 units, 35 units had achieved over 50% coverage for TT (which included all the urban units). Only one district, i.e. Kanpur Dehat (U.P.), had very low coverage of less than even 25%.

**Table 15**

*Distribution of Study Units by % Coverage of TetanusToxoid  
Two doses/Booster to Pregnant Women*

% Coverage	No. of units
25 or less	1
26-50	7
51-75	17
76-85	7
86 +	11
<b>TOTAL</b>	<b>43</b>

**Table 16**

*Distribution of Two Groups of Districts Taken up during 1985-87  
and 1987-88 for Mothers' TT Immunisation Coverage*

% Coverage	1985-87	1987-88
<25	-	1
26-50	3	4
51-75	9	6
76-85	-	5
86 +	6	1
<b>TOTAL</b>	<b>18</b>	<b>17</b>

Among the different units, 11 units including four urban units, achieved over 85% coverage of pregnant women with two doses/booster dose of TT. These included two units in Madras, one unit each in Bombay and Calcutta, Burdwan (W.B.), Coimbatore and South Arcot (Tamil Nadu), Patiala (Punjab), Quilon (Kerala), Bhiwani (Haryana) and North Goa.

TT coverage for pregnant women was compared between the two groups of districts according to the duration of implementation of UIP. It was seen that out of 18 units taken up earlier in 85-87, 15 had more than 50% coverage, of which six units had over 85% coverage. Among the 17 units/districts taken up later, in 87-88, though 16 had over 50% coverage, only one district could protect over 85% of the pregnant women (Table 16).

### **Source of Immunisation for TT**

Information on the source of immunisation for TT could be obtained for 31 units only. Among the districts, only two (Tumkur in Karnataka and Meerut in U.P.) had hospitals as the major source of TT i.e. 41.67% and 69.17% respectively. In the



urban units, out of seven units, six had hospitals as the main source, the proportion ranging between 39.75% and 76%. In eight districts, health centres provided maximum coverage to pregnant women and the proportion ranged between 37.5% and 72.11%. Only four districts, (Bijapur in Karnataka, Nanded in Maharashtra, South Arcot in Tamil Nadu and Murshidabad in West Bengal), achieved maximum coverage through the outreach strategy. In six districts and two urban units, private sources provided maximum coverage for TT for pregnant women (Appendix XXIV).

## Antenatal Care

In the 43 units covered during the review, the proportion of women who had some antenatal contacts with health functionaries ranged between 20.95% (in Kanpur Dehat, U.P.) and 99% (in Quilon, Kerala) (Appendix XXV and Table 17).

**Table 17**

*Distribution of Study Units by Percentage of Antenatal Contacts with Health Functionaries for Pregnant Women*

% With Antenatal Contacts	No. of units
<25	1
26-50	7
51-75	13
76-85	10
86 +	12
<b>TOTAL</b>	<b>43</b>

Out of 43 units, in 35, the pregnant women were reported to have some contact with health personnel during the antenatal period. Among the eight urban units, the proportion of women with antenatal contacts was quite high and in seven units it was over 80%, while in one unit in Delhi it was 71.6%. Among the States, both districts in Andhra Pradesh, Goa, Gujarat, Kerala, Punjab and Tamil Nadu and one district each in Himachal Pradesh (Bilaspur), Karnataka (Tumkur), Maharashtra (Pune) and West Bengal (Burdwan) had more than 75% of the pregnant women having had antenatal contacts with health personnel. States like Bihar, Assam, Rajasthan, U.P., etc. still have to catch up with the trend to protect mothers. It will be interesting to observe that 35 districts (units) reported more than 50% of the pregnant women to be receiving Antenatal Care (ANC). An equal number of districts have reported TT coverage of more than 50%. Strengthening of ANC will ensure higher rate of protection amongst pregnant women.



## Reasons For Incomplete Immunisation

In the case of children who were not immunised or were given incomplete immunisation, the mothers were asked about the reasons for this. One of the main contributing factors was related to the lack of adequate information. A large proportion of mothers in almost all the units/districts studied expressed their lack of awareness regarding the need for immunisation as one of the main reasons. The only exception observed was in Kerala with only 1.9% of the women stating this to be the main reason. In others, the percentage of women stating this reason ranged between 18.99% in Kasargode (Kerala) and 59% in Katihar (Bihar). The fact that over 50% of the women, were not aware of the need for immunisation in districts like Warangal (Andhra Pradesh), Panchmahal (Gujarat), and Bharatpur (Rajasthan), warrants special attention in IEC activities (Appendix XXVI).

Lack of awareness of the need to return for further doses of immunisation was also stated as another reason by many. Thus, 27.19% in Panchmahal (Gujarat), 24.1% in Bilaspur (Himachal Pradesh) stating this reason suggests that at the time of their first contact for immunisation, the health personnel should stress to the mothers the actual number of doses to be taken and when exactly they have to return for such repeat doses. Fear of side reactions was reported as a reason for incomplete immunisation by 30.2% of the mothers in Bijapur (Karnataka). The need for adequate dissemination of information regarding the place/venue and time of immunisation is indicated by the fact that lack of knowledge about this was stated as the reason for incomplete/non-immunisation by 17.6% in Nowgaon (Assam), 16.96% in Bilaspur (H.P.), 13.33% in Tumkur (Karnataka) 26.5% in Murshidabad (West Bengal) and 21.9% in one unit of Delhi.

If the mothers are well motivated and if they have felt a sense of urgency in getting their children immunised, they would not postpone this service but would avail of it on the due date. But in some units/districts like Panchmahal (Gujarat), Kasargode (Kerala), Pune (Maharashtra), Coimbatore (Tamil Nadu), Meerut (Uttar Pradesh), Burdwan (West Bengal), Patiala (Punjab) and Delhi, the proportion of mothers varying between 14% - 25% postponed immunisation due to some reason or the other, indicating their low level of motivation. In Bijapur (Karnataka) 28.5%, Ganjam (Orissa) and Burdwan (West Bengal) 18% each, the women had not availed of the service because they had no faith in immunisation (Appendix XXVII).

Problems of accessibility to immunisation due to distance from the homes would interfere with the acceptance of service. In Singhbhum (Bihar) 48% and North Goa 40.54% of the women expressed this as a reason for incomplete/non-immunisa-



tion. By and large, the timings of immunisation services were acceptable to the mothers since only very few had indicated inconvenience as a reason for non-acceptance of the service. In 26 units, varying proportions of mothers did not get children immunised because the vaccinator was absent. This proportion was 10 to 26% in 10 units viz. Katihar (Bihar), two districts in Gujarat, Thumkur (Karnataka), Mandla (M.P.), both districts in Rajasthan, South Arcot (Tamil Nadu), Kanpur Dehat (U.P.) and Delhi. Non-availability of vaccine as a reason for incomplete/non-immunisation was mentioned by only a small proportion of mothers in most States. However, in Bilaspur (H.P.) 16% of the mothers, in Nowgaon (Assam) 10%, in Nanded (Maharashtra) 21.9%, in Sambalpur (Orissa) 17.8%, and in Murshidabad (West Bengal) 23.2% stating this as a reason for non-immunisation, draws attention towards the need for better logistics management (Appendix XXVIII).

### Vaccination Coverage in North-Eastern States

The details regarding vaccination coverage among children in the 2 sets of districts from the North-Eastern States (1985-87 and 1987-88 groups) is shown below:

**Table 18**

*Immunisation Status of Children in North-Eastern States*

Immunisation Status	Proportion of eligibles protected in districts by year of initiation of UIP	
	1985 - 87	1987 - 88
Fully Immunised	30.9%	21.02%
DPT	56.8%	44.3%
OPV	49.7%	44.8%
BCG	51.1%	29.9%
Measles	36.6%	20.0%
TT II Pregnant women	59.9%	49.5%

The percentage of fully immunised children for all 6 vaccines was 30.9% in the 1985-87 group and 21.02% in the 1987-88 group. Immunisation performance in the districts taken up earlier under UIP had been, by and large, better than in the latter group. The same is true for protection by individual vaccine groups, as shown below:

With regard to drop-out rates among children for both DPT and OPV, the groups of districts did not differ much and the drop-out rate was between 26%-28%.

**Table 19**

*Dropout Rates for OPV 1-3 and DPT 1-3 in North-Eastern States*

Vaccine group	Dropout rates in districts by year of initiation of UIP	
	1985 - 87	1987 - 88
DPT 1-3	26.2%	28.5%
OPV 1-3	27.8%	26.7%

The percentage of pregnant mothers protected with two doses of Tetanus Toxoid was 59.9% in the 1985-87 group of districts and 49.5% in the 1987-88 group.

**Source of Immunisation in North-Eastern States**

Details regarding the sources of immunisation for different groups of vaccines is shown below:

**Table 20**

*Source of Immunisation for Different Groups of Vaccine  
in North-Eastern States*

Sources	% Response for Group of Vaccines				
	DPT	OPV	BCG	Measles	TT
Hospital	40.4	45.3	41.4	32.7	47.4
Health Centre	53.8	49.0	55.2	64.8	42.9
Outreach	1.6	1.8	2.8	2.5	4.4
Private	2.4	2.8	-	-	3.7
Anganwadi	1.0	1.2	-	-	-

By and large, the two major sources of immunisation were hospitals (ranging between 32.7% and 47.4%) and health centres (ranging between 42.9% and 64.5%) for different groups of vaccines. Of the two, a higher proportion mentioned health centres as the main source. The outreach session as source was mentioned by a relatively negligible proportion of beneficiaries.

**Reasons for non/partial Immunisation in North-Eastern States**

With regard to reasons for non/partial immunisation, the major group of reasons was related to lack of information i.e. 51.8%. This was followed by causes related to obstacles like absence of vaccine or vaccinator, etc., as stated by 35.1% and lack of motivation as stated by 12.3%.



# OBSERVATION OF IMMUNISATION SESSIONS

Immunisation services provided at the subcentres or at outreach sessions have often been maligned as being of very poor quality, with improperly kept vaccine, one syringe being used repeatedly to give many injections and the sessions being mute with no communication or information provided to the beneficiaries.

It was for these reasons that the teams, while carrying out coverage evaluation, also tried to observe the immunisation sessions in operation either at the subcentre or in the outreach villages. A check-list had been provided to observe the following major areas:

- i. Whether the vaccine used was within the expiry date.
- ii. Whether the vaccine was kept on ice while being used for immunisation.
- iii. Methods of handling partially used vaccine vials, after the session is over.
- iv. Whether the proper dose of vaccine was being given at the proper site, using the correct technique of vaccination.
- v. Whether separate syringes and needles were used for each immunisation
- vi. Adequacy of syringes and needles to meet the requirement of the session.
- vii. Whether adequate information to the mothers about immunisation e.g. need, doses, repeat visit, complication, etc. was given.
- viii. Correctness of filling of the immunisation cards by the staff.
- ix. Whether immunisation cards were given to the mothers and whether they were told to bring them back on the next visit.

A total of 465 immunisation sessions in action were observed of which 272 were at the subcentres and 193 at outreach villages.

Without meaning to compare the quality of sessions in two different situations, the results have been put together to reflect the commonality in strengths and weaknesses in two different situations. However, it may be remembered that the performer in both situations is generally the MPW(F)/ANM.

The results of observation of the sessions have been summarised and the proportion of sessions observed at the subcentres and outreach villages satisfying the specified requirements/conditions is presented below:

Specified conditions satisfied	Proportion of sessions	
	Subcentre	Outreach
1. Immunisation services integrated with other MCH activities	84.6	76.6
2. Immunisation cards filled correctly	80.5	70.2
3. Immunisation cards given to the mothers	81.3	60.4
4. Age screening done correctly	88.6	82.0

5. The following immunisations are being given		
DPT	97.2	97.0
OPV	94.4	94.0
BCG	77.6	83.8
T.T.	94.3	90.1
Measles	84.1	83.8
6. Vaccines within expiry date	78.8	-
7. Vaccine kept on ice at the time of immunisation	83.9	80.0
8. Diluent also kept in the vaccine carrier	86.0	85.0
9. The dosage correct	98.2	94.0
10. Immunisation site correct	94.6	92.2
11. Immunisation technique correct	92.9	88.0
12. Number of syringes and needles adequate, in proportion to the required number of vaccinations to be given	70.5	70.0
13. Separate syringe and needle used for each immunisation	73.0	75.6
14. Adequate number of frozen ice packs in vaccine carriers	79.1	72.7
15. Partially used vials discarded at the end of the session	87.0	83.1
16. Mothers properly informed about:		
- Purpose of immunisation	87.0	77.1
- Number of doses	94.0	88.8
- Right age for immunisation	86.2	80.8
- Possibility of side effects	88.6	78.5
- When to come back for next dose	93.1	90.4
- Safe keeping of immunisation card	82.8	74.4

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A careful review of the above observations reveal following facts:

- Immunisation services were, to a great extent, integrated with other MCH services and not run as an exclusive programme at the cost of other services. In 86% of the sessions at the subcentres and 76% of the sessions in the outreach, MCH services were also provided along with immunisation.
- Workers were found to be proficient in giving the correct dose, at the correct site, using the correct technique. It would be seen that nearly 93% or more of the workers were found to be using the correct technique, site and dose.
- In nearly 80% of immunisation session in the outreach and 84% of the sessions at subcentres, it was observed that the vaccine was kept on ice. However, in nearly 20% of the sessions, the workers defaulted in keeping the vaccine in the proper manner, and this needs to be looked into and corrected.



The sessions were not run mechanically but in nearly 85% or above sessions, information was provided to the beneficiaries regarding various aspects of immunisation.

However, there were four major areas of great concern requiring immediate attention and correction.

1. At only 80% of immunisation sessions, the vaccine was found to be within the expiry date, whereas in the remaining 20%, the vaccine had been utilised for immunising children after the expiry date. Such neglect cannot be condoned and deserves to be viewed seriously. Medical officers I/C PHCs should ensure that no vaccine is issued after the expiry dates.
2. In nearly 18-20% of the sessions, it was observed that the vaccine was also not kept on ice to maintain the appropriate temperature.
3. In nearly 30% of immunisation sessions, it was observed that the workers were not using a separate syringe and needle for each immunisation. In an equal number of sessions, the number of syringes and needles, etc. was not found adequate in proportion to the required number of vaccinations to be given. Such practices, in spite of repeated instructions, continue to prevail amongst workers either due to fear of breakage and recovery of loss, or deliberate avoidance to reduce the load of boiling or carrying a large number of syringes in the field.
4. Similarly, immunisation cards were either not filled or not given to the mothers in nearly 20% of the sessions held at the subcentres and 30% of the sessions held in the outreach.

Default in filling and proper distribution of cards was generally reported when there was a rush of beneficiaries, and sessions were overcrowded. In some instances, shortage of cards, or in some other instances, purposeful neglect, was also the cause for defaulting in filling and supplying immunisation cards.

Given human nature and the various exigencies of circumstances, it would be nearly impossible to reach the score of 100%, though one may wish it. The fact that 80% are performing according to the desired norms is encouraging. Nevertheless, one should not be complacent; on the contrary, it is important to remember that nearly 20% are defaulting in major qualitative aspects like using vaccines after the expiry date, not using a separate syringe or needle for each immunisation, or providing immunisation cards, etc. Hence, there is need for concentrating on these areas of weaknesses.

### **Information on Missed Opportunity for Immunisation**

Many children visiting health care institutions for different purposes are partially immunised or not immunised at all. Despite the fact that they come in





contact with a health facility and have the opportunity to be immunised, for one reason or another, such an opportunity is missed. It may be due to the absence of the practice of screening children for immunisation status, wrong beliefs about contraindications or the lack of facility for immunisation. Utilising all available opportunities to immunise children will result in preventing avoidable deaths and disability in children.

WHO has been trying to introduce the concept of undertaking studies related to such 'missed opportunities' for immunisation, since the results so obtained would make health facilities sensitive to screening children and immunising them when and wherever possible.

With this in view, the study on missed opportunities was undertaken in selected districts covered under the review of the Immunisation Programme. Children, and the women accompanying them, while attending different types of health facilities, either for out-patient care, indoor treatment, well-baby clinic or immunisation clinic, were screened through enquiries about their immunisation status.

The results obtained from four States viz. Tamil Nadu, Ganjam in Orissa, Rajasthan and Kerala are presented below.

A total of 211 children in Tamil Nadu, 22 in Ganjam and 100 children belonging to the age-group 0-23 months in Rajasthan were screened for immunisation status amongst the children who had come to the paediatric out-patient clinic or immunisation clinic. About 42 children admitted in the children's ward were also screened. Likewise, in Kerala, children admitted in wards were also screened for immunisation status.

In Tamil Nadu, it was observed that 68.25% of the total children had immunisation cards, whereas 31.75% had not been issued any cards. In Ganjam, the proportion of children who had been issued cards was 18/22 (81.18%), whereas in Rajasthan around 70% had been issued cards.

In Tamil Nadu, it was observed that more than 50% of the children screened had not received immunisation against measles, whereas for other groups of vaccines, the opportunity missed for completing immunisation was around 7-12% only.

In Ganjam, nearly 75% missed receiving BCG vaccine, whereas in Rajasthan only 18% missed receiving the 2nd or 3rd dose of DPT or OPV and only 2% failed to receive BCG. In Kerala, 50% of the children admitted in wards had missed receiving the 2nd or 3rd dose of D.P.T. and OPV.

The reasons commonly given were:

1. Wrong beliefs about contraindications amongst parents as well as the medical profession
2. Facilities not available, as in the wards in the State of Kerala
3. Timing and day of immunisation not suitable, for example in Ganjam, B.C.G. vaccination is given only in the evenings on Saturdays.



4. In Rajasthan, parents of two children who missed being immunised against BCG in early infancy never knew that BCG vaccination could be given at a later date.

However, parents of these children in all the States were willing to get their children immunised on the day of the enquiry. As a matter of fact, 169 children were immunised during the review in Tamil Nadu.

About 224 women in the age-group 15-45, who were either accompanying children or attending prenatal clinics, were screened in Tamil Nadu. Out of those screened, there were only 27 who had not received the 2nd dose of TT.

In Ganjam, 18 women were screened out of whom, eight had not been immunised fully with T.T. 94 women were screened in Rajasthan during their visits to hospitals to attend clinic with their children or due to their own illness. Out of these, 21 had not been immunised or only partially immunised with T.T.

No women who had received T.T. complained of complication of any kind.

In Tamil Nadu and Ganjam, no particular reason was ascribed by these women, for their failure to get immunisation, whereas in Rajasthan, out of 21 women, 12 had never attended prenatal clinic during their pregnancy, and, hence, had not been vaccinated, seven were sick and one delivered prematurely. One woman failed to get the 2nd dose due to her own negligence.

The results obtained make out a clear case for initiating the screening of eligible children for immunisation status during their visits to out-patient clinics or as indoor cases. Most of the parents and pregnant women were willing to take vaccination. This amply justifies the expectation that for all such beneficiaries who have missed being immunised at the appropriate time, facilities should be provided for immunisation later.

## IMMUNISATION PERFORMANCE THROUGH RECORDED DATA

The annual targets for immunising pregnant women and infants are communicated to the State Government by the Government of India. These targets are worked out on the basis of the projected population, estimated number of pregnant women and infants. The States, in turn, distribute these targets to the districts, keeping in view the estimates of population, past performance and geographical area. Based on the same principle, the CMO of the district, distributes targets to all PHCs (including PHCs under medical colleges) in the district and PHCs assign targets to their subcentres.

One of the common indicators used in assessing the performance under the programme is the extent of achievement of targets allotted.



As the national goal of UIP is to protect 100% of the pregnant women with TT and 85% of the infants with the 4 groups of vaccines viz. BCG, DPT, polio and measles, all assessment should be based on the proportion of the eligibles protected.

## Registration of Beneficiaries

For successful implementation of the programme, it is essential that every functional unit should register the maximum number of eligible beneficiaries i.e. pregnant women and infants. Completeness and updatedness of the registration would enable better coverage.

With regard to registration of eligibles during the year 1988-89, of the 42 units (35 districts + 7 NES), as many as 18 did not have adequate record of registration of infants. Similarly, 17 units did not have records of registration of pregnant women.

Table 21 shows the extent of registration as compared to the estimated eligible population. It may be seen that in 14 units, more than 76% of the infants had been registered. Similarly, 15 units showed registration of pregnant women at 76% or more. However, three units were found to have registered more than 100% of eligible beneficiaries. On the other side of the scale, six units had registered less than 50% of the pregnant women and three units had registered less than 50% of infants (Table 21).

**Table 21**

*Distribution of Districts According to Proportion of Registered Beneficiaries*

% eligibles registered	Number of Districts	
	Infants	Pregnant Women
<50	3	6
51 - 75	4	4
76 - 100	14	15
+ 100	3	-
Data not available	18	17
<b>TOTAL</b>	<b>42</b>	<b>42</b>

Some districts like Nowgaon, Singhbhum, Bilaspur and Bijapur had registered a higher percentage of infants, ranging between 60-90%. However, not more than 45% of the pregnant women were registered in these districts. Nowgaon in Assam had registered as few as 27% of eligible pregnant women. Similarly, in Tripura, only 24% of the pregnant women had been registered (Appendix XXIX).

Lack of data of registered beneficiaries or incomplete or very low extent of registration of the estimated beneficiaries may be one of the important factors responsible for inability to reach the desired goals.



## Estimates of Eligible Beneficiaries

Another important observation was the difference in the estimated number of pregnant women and infants communicated by the Ministry of Health and Family Welfare, Government of India, for 1988-89, and those estimated by the districts.

Out of 42 units (35 districts and seven small States), data were not available for five units. Of the remaining units, three units showed no difference between the two estimates for pregnant women. Likewise, one unit did not show any difference in the estimates for infants (Table 22 and Appendix XXX).

**Table 22**

*Number of Districts with Difference between Estimates of Population by districts and those Communicated by Ministry of Health and Family Welfare*

Difference between the two estimates	Number of Districts	
	Pregnant Women	Infants
Equal	3	1
More than G.O.I. estimate	16	16
Less than G.O.I. estimate	18	20
Data not available	5	5
<b>TOTAL</b>	<b>42</b>	<b>42</b>

Units showing lower estimates as compared to the Government of India estimates for pregnant women and infants were 18 and 20 respectively. In the remaining 16 units, estimates were found to be higher than what was conveyed by the Government of India for pregnant women and infants.

Such differences in the estimates may be reflected in the demand for vaccines and allocation of targets. For instance, targets allotted by the Government of India are on the higher side in the case of H.P., since the birth rate and IMR taken for calculation of the eligibles pertained to the year 1985.

## Immunisation Performance: Target Achievements

Over the years, there has been a gradual improvement in performance as reported from every State. A large number of States have reported more than 100% achievement of targets for different vaccines.

Out of 35 districts reviewed under the National Review of the Immunisation Programme in 18 major States, the reported proportion of achievement of targets for 33 districts for the year 1988-89 is given below in Table 23.

**Table 23**

*Distribution of Districts According to Proportion of Targets Achieved for Different Groups of Vaccines*

Vaccines	No. of Districts Reporting Target Achievements				TOTAL
	100%	76-100%	50-75%	50%	
BCG	19	9	3	2	33
DPT	15	13	4	1	33
Polio	16	12	3	2	33
Measles	9	9	10	5	33
TT Mother	4	13	10	6	33

Out of 33 districts, nearly 28 have reported more than 75% achievement for three groups of vaccines, viz. BCG, DPT, polio. For measles, nearly 18 districts have claimed achievement of more than 75%.

As a matter of fact, 15-19 of the total districts under review have reported more than 100% target achievement for three groups of vaccines viz. BCG, DPT, OPV. Similarly, nine districts have claimed more than 100% achievement of targets for measles, whereas only four districts have reported more than 100% achievement of targets for TT immunisation.

Only 17 districts claim to have provided protection for more than 75% of the pregnant women. As many as six districts have been able to immunise less than 50% of the pregnant women.

The situation for the North-Eastern States is also not different. As per reports, Manipur and Mizoram claim to have provided protection to more than 100% of the target population against BCG, DPT and OPV. They have also been able to immunise 85% of the target pregnant women and more than 75% of the target children for measles vaccination.

Reports indicate that Arunachal Pradesh has also achieved targets of more than 75% of children for the four groups of vaccines, whereas Meghalaya has a higher proportion of achievement (110%) for OPV and DPT. In Tripura, the overall target achievement is below 50%, whereas in Nagaland and Sikkim, it ranged from 51% to 75%. However, in these States, except Mizoram, Manipur and Arunachal Pradesh, target achievement for pregnant women is of a very low order, ranging between 10-40% only.

### **Gap Between Reported Target Achievements and Actual Immunisation Coverage**

Looking at the reports, one is led to believe that we are very near our goals, and giving a little push would enable us to reach the desired goals before the close of 1989-90.



However, a comparison with the findings of the coverage evaluation under the National Review of the Immunisation Programme in these districts elucidates a big gap between reported achievement of targets and actual coverage observed by the evaluation team (Appendix XXXI).

The difference in the two groups of observations is easily perceptible in every district. Yet, in some districts, the gap is phenomenally very high with generally much higher percentage of target achievement than actual coverage. To name a few, there are Warangal, Katihar, Singhbhum, Bharatpur, Jhalawar, Kanpur Dehat, Murshidabad, etc. Singhbhum has reported more than 150% of target achievement for BCG vaccination, whereas the actual percentage of BCG vaccination coverage observed by review team was only 22.54%.

At the other extreme, district Panchmahal has reported only 61.3% of target achievement for BCG, whereas in the coverage evaluation, children protected with BCG were found to comprise 66.3%.

Table 24 reflects the extent of difference between the percentage target achievement and percentage coverage in 33 districts under review for BCG, DPT, OPV and Measles.

**Table 24**

*Distribution of Districts by extent of Difference between Percentage Coverage and Percentage Target Achievement for Different Vaccines in 33 Districts*

Difference between two percentages	BCG	DPT	OPV	Measles
< 10%	2	5	5	2
11-24	2	5	8	6
25-49	13	17	13	12
50 +	16	6	7	13
	33	33	33	33

In 16 districts, the gap between the two observations is more than 50% for BCG. Similarly, exceptionally high reporting is observed for measles vaccination by 13 districts, whereas for DPT and OPV, the situation is slightly different. In nearly 1/3 of the districts, the gap for the two vaccines is less than 25% and only six and seven districts have shown a gap of 50% or more. The exaggerated performance for BCG may be due to the fact that in a large number of States, BCG is not integrated with UIP and is given by the BCG worker in the hospital and in the field. In some districts, the BCG worker and the MPW(F) are both giving BCG.

## Proportion of Children Immunised Under 1 Year of Age

One of the arguments propounded for higher proportionate achievement of targets is the inclusion of children over one year of age for immunisation.

**Table 25**

*Distribution of Districts According to Proportion of Children Immunised below one Year of Age out of the Total Immunised for Different Groups of Vaccines*

%age of Children immunised under 1 year of age	BCG	DPT	OPV	Measles
< 50	1	1	2	2
51-75	8	8	6	8
76 +	16	16	17	15
	25	25	25	25

In eight districts, the recording of vaccination was not classified by age. The above table indicates that of the 25 districts for which data were available, in a majority of districts (between 15-17 in number), more than 75% of the children immunised were under one year for all the four groups of vaccines. Only in one by two districts, less than 50% of the children were protected during infancy. In 6-8 districts, the proportion of infants immunised ranged between 51-75% (Table 25).

In Kanpur Dehat, only 45% of the children received DPT before one year of age. The percentage of children under one year for OPV and measles was as low as 24%. It means more than 76% of the children received vaccine after one year of age. It is therefore, not surprising that in Kanpur Dehat, the percentage of achievement of targets has been reported to be more than 100%, whereas the actual extent of coverage in the survey has been less than 30% (Appendix XXXII).

Similarly, Singhbhum in Bihar has shown that nearly 45% of the children received DPT<sub>3</sub> and OPV<sub>3</sub> after completing one year of age, but, again, target achievement has been shown to be more than 100%.

In Arunachal Pradesh, more than 60-70% of the children completed immunisation after one year of age. In some States like Tripura, Manipur and in some districts elsewhere, age-wise data were not available.

## Proportion of Eligible Beneficiaries Protected

As said earlier since the national goals have been defined as protection to 100% of the pregnant women and 85% of infants, all progress should be assessed based on the percentage of eligibles protected.



A careful review of the percentage of eligibles protected based on reports published by the Government of India for 1988-89 (Appendix XXXIII) reveals that no State has reached the goal of protecting 100% of the pregnant women. Kerala has been able to protect 99%. The all India achievement for TT immunisation protection for eligibles is 62.87%. A broad classification of States according to the percentage of eligible pregnant women protected with TT for 1988-89 is given in Table 26.

**Table 26**

*Distribution of States According to Percentage of Eligible Pregnant Women Protected with TT as per Reported Data*

<b>%age of Pregnant Women Protected with T.T.</b>	<b>No. of States</b>
25 or less	4
26-50	6
51-75	10
76-85	5
86 +	1
<b>TOTAL</b>	<b>26</b>

Out of 25 States and one metro, one State (Kerala) has reached protection level of 99%. As many as 10 (38.4%) could not even provide protection to 50% of the pregnant women. Out of these, as many as four (40%) could not reach even 25% of the mothers. Only five (20%) could protect 75-80% of the pregnant women.

A similar distribution of States for the percentage of eligible children protected for different vaccines is shown in Table 27, as per reported data:

**Table 27**

*Distribution of States According to Percentage of Eligible Child Population Protected with Different Vaccines 1988-89*

<b>Percentage of Children Protected</b>	<b>Number of States giving protection as per reported data for</b>			
	<b>BCG</b>	<b>DPT</b>	<b>OPV</b>	<b>Measles</b>
25 or less	3	0	2	5
26-50	1	4	3	6
51-75	6	8	10	12
76-84	6	9	5	2
85 +	10	5	6	1
All India % of achievement	77	76.8	71.74	53.3

From Table 27, it is revealed that in 10 States, the BCG protection rate has reached the level of 85% of estimated eligibles. Yet in four States, the coverage is below 50%. Out of these four, three could not reach the level of even 25% protection. In another six States, the level of protection ranged between 76-84%. For the DPT and OPV groups of vaccines only five and six (less than 1/2 for BCG) States, have reached the protection rate of 85% and above. In Assam, J&K, Meghalaya, Tripura, Haryana and Punjab, the protection rate of eligibles is 100%. For DPT, another nine States have reached the protection rate of 76-84%, but in the case of OPV only five States have reached this level. In case of DPT, four States and for OPV, five States have not been able to protect upto 50% of the children. Measles vaccine is a late starter, therefore, as many as 11 States are still below 50% protection and only one State has claimed protection rate of 85% (Appendix XXXIV).

### **The Gap between the Proportion of Eligibles Protected Based on Reported Data and Actual Immunisation Coverage**

Table 28 shows distribution of districts according to gaps between observations of coverage evaluation and reported proportion of eligible protected

**Table 28**

*Distribution of Districts by the Gap Between Proportion of Eligibles Protected Based on Reported Data and Actually Immunised During Coverage Evaluation*

Difference between two observations	Number of Districts			
	BCG	DPT	OPV	Measles
< 10	2	9	7	3
11-25	5	9	12	9
26-50	16	11	9	13
50 +	9	4	5	8
Data not available	1	-	-	-
<b>TOTAL</b>	<b>33</b>	<b>33</b>	<b>33</b>	<b>33</b>

As expected, the gap between the two observations for different groups of vaccines has narrowed down. However, it should be remembered that this also includes the number of children protected who are over one year of age but reported as infants.

When comparing the gap between the percentage of eligibles protected and actual coverage versus the gap between target achievement and coverage (Table 24), it may be seen that the number of districts reporting over 50% gap has been reduced for all vaccines e.g. 9 against 16 for BCG, 4 against 6 for DPT, 5 against 7 for OPV, 8 against 13 for measles.



The gap would have narrowed down further but, surprisingly, seven districts have reported a higher target population than the estimated population. Singhbhum has an estimated population of 86,000 infants, whereas the target population is 92,000. Similarly, Meerut has reported a target of 92,000 for infants against 77,000 estimated population. Variations in estimated population and targets to be achieved seriously reflect on the quality of data and raises questions about their reliability.

It may be argued that these protection rates include figures for both UIP and non-UIP districts, hence, the level of achievement may be low, but it should not be forgotten that since the beginning of this year, all districts have been included under UIP, and, hence, the projected picture should give an insight into the task yet to be achieved and the challenges that lie ahead.

In some of the districts covered under the National Review of the Immunisation Programme during 1989, independent coverage evaluation surveys had been carried out earlier in 1988. Comparison of the results from the two coverage surveys revealed that during that 1 year (since 1988), every district had improved its performance in terms of full protection, including measles, and also for every group of vaccine. Yet, the difference in fully immunised children is only marginal, except in Coimbatore and Kasargode, where it is almost double than that reported in 1988. In Kanpur Dehat, also, it has shown an increase from 2% to 8% (Appendix XXXV).

## Disease Surveillance

Availability of adequate and reliable information on the occurrence of vaccine preventable diseases would go a long way in helping the programme managers to effectively plan the programme strategies and take appropriate remedial measures in the operation of the programme, and also in assessing the impact of the programme. Therefore, different methods of collecting this information are inbuilt in the Immunisation Programme viz. routine reporting, based on passive surveillance and sentinel centres; and active surveillance, etc. It has been fully recognised that each method has its own advantages and limitations. In addition to the above, investigation of outbreaks of vaccine preventable diseases are also expected to be undertaken, which would provide more reliable epidemiological data on these diseases. One of the most important methods which could provide most reliable and accurate information on disease occurrence as well as on epidemiological data is disease survey, if conducted by covering a fairly adequate sample size and using proper scientific methods. Sample surveys were organised in India in 1981 and 1982 to collect reliable baseline data on neonatal tetanus and poliomyelitis on a countrywide basis. Later, in individual districts also, such disease surveys were incorporated as a regular activity along with vaccination coverage evaluation surveys.

### Routine Reporting

Under the existing system of surveillance, health institutions participating in the immunisation programme are expected to report on the vaccine preventable diseases encountered along with the monthly reports on performance. This data is based on passive surveillance through the health institutions. These reports are expected to be sent from the subcentres to the PHCs and from PHCs and other health institutions to the district health authorities. In the case of UIP districts, the district authorities send collated reports - one copy direct to the UIP Cell in the Ministry of Health and Family Welfare and one to State Directorate. All other districts send reports to the State Directorates only. The respective States, after collating the report for the entire State, send it to the Director, Central Bureau of Health Intelligence, under DGHS, where the country reports are prepared.



## Sentinel Centres

In order to ensure better quality and regularity of data, sentinel centres have been identified all over the country. Hospitals, health centres, laboratories, rehabilitation centres, infectious disease (ID) hospitals, etc. which are likely to attend to a large number of cases of vaccine preventable diseases are considered as sentinel centres. In addition to large attendance, these centres are expected to have adequate facilities for laboratory diagnosis, better recording and reporting about cases with properly trained manpower to handle them.

## Surveillance Centres

The National Institute of Communicable Diseases, Delhi, has identified a number of disease surveillance centres (over 50) all over the country, for regular reporting about selected diseases which include vaccine preventable diseases also. It was observed that of these, only 26 institutions are sending regular reports to NICD. These reports are being collected with the specific idea of forewarning about epidemic outbreaks.

In reports sent to the Ministry of Health and Family Welfare, by UIP districts, neonatal tetanus and childhood tuberculosis are shown separately from the general cases of tetanus and tuberculosis. However, in reports sent by State Headquarters to the Central Bureau of Health Intelligence (CBHI) and by surveillance centres to NICD, these cases are shown clubbed with the general cases.

## Disease Surveillance in States

To study the system of disease surveillance, the following four aspects were looked into in the States covered under the National Review.

1. a) The level of knowledge of peripheral workers to identify VPDs.  
b) Whether they have been provided with written descriptions and pictures of VPDs or not.
2. System of collecting information, including the source as well as recording and reporting.
3. System of follow-up and action taken on cases reported.
4. System of investigating:  
a) the outbreaks of vaccine preventable diseases,  
b) adverse reaction, including death due to vaccination.

## Knowledge of Peripheral Health Workers

By and large, in all the States, peripheral health workers were reported to be knowledgeable about identification of vaccine preventable diseases. It was observed



that in 31 units out of 43, the workers had been trained to identify VPDs. In seven units, the workers had not received any training, whereas in five, no information was available. Written descriptions about VPDs have been incorporated in their manuals and many staff interviewed were aware of them. In 27 units, it was reported that workers had been provided with such descriptions, whereas in 11 units, such descriptions were not available and in five, information was not given. In some States like Andhra Pradesh, Gujarat, Himachal Pradesh, Orissa, Maharashtra, etc. they have also been provided with folders containing pictures of vaccine preventable diseases. As reported by 21 units the workers had been provided with pictures of VPDs, whereas in 17 units, no such pictures had been provided.

Information obtained in this regard from workers at 383 subcentres during interviews is as follows:

% of workers given written description of disease	60.1
% of workers given picture of each disease	66.7
% of workers who were instructed to report cases of neonatal tetanus and poliomyelitis	80.1

In spite of the above facts, the workers did not understand or appreciate the usefulness/purpose of reporting and, therefore, the search for a VPD case was found to be their lowest priority. Similarly, the importance of reporting occurrence of VPD among already vaccinated children was also not clearly appreciated by the staff. The responses of peripheral workers at the subcentres in this regard substantiate the observation. Even though 11.3% of the workers reported that they knew about children who had developed VPD after vaccination, only 53.1% of them had reported this matter to the PHC.

Most of the vaccine preventable disease cases are difficult to diagnose in their early stage, therefore, cases which do not respond to treatment at the subcentre are referred, without being diagnosed, to the PHC and from there to the subdivisional or district hospital. In the absence of feedback from such referral centres, such cases are missed and are not recorded at the subcentres.

With regard to the system of collecting information on vaccine preventable diseases, passive surveillance by health institutions was found to be the major means and source of information. PHC, district hospitals and subcentres were recording the vaccine preventable cases seen during their routine OPDs. They were analysed at the end of the month and data were included while preparing the monthly report. However, during the review, it was observed that in most subcentres, records on vaccine preventable disease cases were not being maintained properly.

The concept of active surveillance was noted as being introduced gradually. Only six units reported that information on VPD was also collected by active surveillance, besides the cases attending OPD or reported by others. Some of the States viz.



Gujarat, Himachal Pradesh, Goa and Tamil Nadu have started active surveillance reporting on vaccine preventable diseases.

In the State of Uttar Pradesh, measles has been declared as a notifiable disease and its reporting has been made compulsory.

### **Follow-up Action**

Follow-up action on routinely reported cases was found to be practically non-existent. All reports collected at the PHC, are passed on to higher formations. In the monthly meeting, generally, disease surveillance data are not adequately discussed, nor any action for verifying the cases reported. However, in a few States like Goa, Gujarat, Himachal Pradesh, M.P., Tamil Nadu, Orissa, Rajasthan, U.P. and Maharashtra, etc. attempts are being made to verify and investigate reported cases. Out of 48 units, only 27 received reports about NNT and polio regularly even if it was nil, whereas in the other 16 units, information was either not received or not available.

Following receipt of such reports, in 11 units efforts for their clinical verification in the field were reported.

Regarding occurrence of disease after complete vaccination only six units received such reports. Cases which were reported were mostly of measles, pertussis, neonatal tetanus and polio. Wherever such reports were received, special efforts were made to organise campaigns of immunisation and also for strengthening of the cold chain.

Only 24 units reported that information on VPDs was available. 19 units did not have any data available. However, out of 19 units, 10 informed that the data are kept at the PHC level, hence, not available at the district level.

Records for indoor cases were maintained according to age, sex, age of onset, date of onset, and place of residence. In outdoor cases, information was available only according to age and sex. Only 10 units maintained record according to status of immunisation. Spot maps of cases during outbreak were prepared only in 6 out of a total of 43 units.

Generally, the records regarding vaccine preventable diseases in all States were found to be poor, incomplete and could not be relied upon. Data collected at these sources could hardly help in understanding the disease trend, or impact of the programme.

### **Sentinel Centres**

District hospitals, subdivisional hospitals, Infectious Disease Hospitals (IDH) and teaching hospitals attached to medical colleges were generally identified as sentinel centres. If put on the anvil of the functions envisaged of a sentinel centres, none in any State measured upto the expected role. In most of the sentinel centres, no



persons had been identified and trained to maintain appropriate records of vaccine preventable diseases in the desired formats. The records maintained were incomplete and even those maintained for indoor cases did not include the immunisation status of the child, complete address, etc. in most places. In the absence of complete records, any follow-up or investigation of a case becomes difficult. At best, it can be said that sentinel centres at present are working as reporting units in all the States without assuming other responsibilities of analysis, interpretation or assisting the health authorities in administrative action.

Unfortunately, (except in selected specialised institutions), the laboratory diagnostic facilities for poliomyelitis and measles were non-existent.

### **Investigation of Outbreaks**

By and large, it was given to understand that cases were being investigated by the district authorities and, if needed, with support from the State or medical college team.

### **Adverse Reactions**

Generally, complications or any adverse reactions were not being reported. Although in the monthly report form there is a column to indicate adverse reactions, it was mostly reported as 'Nil'.

It was found that out of 43 units, in only 16 units reports were received about abscess formation or serious complications, including one death after measles.

This fact is also corroborated from the responses made by ANMs working at the subcentres. Despite the fact that 23.3% ANMs stated that they had come to know of children developing abscess following vaccination, among them only 35% had reported the same to the higher authorities. Similarly, only 6.3% of the ANMs reported any complications after immunisation to the higher authorities in one year.

From this it clearly emerges that in spite of a large number of ANMs (23.3%) accepting the fact that abscess occurred in children, not more than 35.5% of them reported this to the higher authorities. Likewise, wherever complications occurred, only 6.3% reported about them. Reports of death and serious complications have prompted the authorities in six units to initiate action for improving sterilisation procedures and provide treatment facilities.

### **Deaths Following Immunisations**

A number of deaths following vaccination have been reported by some States and almost all of them were following measles vaccination and in one case it was following DPT immunisation. As per the report made available for calendar years 1987 and 1988, the number of deaths reported by the States reviewed were as follows:



State	No.of Deaths
Andhra Pradesh	7
Assam	6
Haryana	3
Orissa	8
Rajasthan	4
Tamil Nadu	3
Uttar Pradesh	16

It was gratifying to note that such events were considered with deep concern and seriousness by the State authorities. In all these States, the reported deaths were thoroughly investigated by committees having senior State level officers, and professors of Microbiology and Community Medicine from medical colleges as members. In some places experts from the virus research laboratory were also invited to be on the committees.

In some of the States, viz. Andhra Pradesh, Gujarat, Rajasthan, Tamil Nadu, etc. separate teams have been constituted, comprising teachers of medical colleges, and senior State level officers from the medical directorate, to investigate all adverse reactions including deaths. In Karnataka, it was reported that the Joint Director (Communicable Diseases) was made responsible for investigating all such cases.

### Disease Surveillance in Metropolitan Areas

In the four metros viz. Bombay, Calcutta, Delhi and Madras, sentinel centres identified were functioning in a better organised way and maintaining the records as per desired norm, i.e. according to age, sex, residential status, immunisation status, etc.

However, data sent from the periphery and ward/health post/MCW centre are far from satisfactory. Except Madras, no metro seemed to have scheduled discussions on vaccine preventable disease cases reported. Except in the event of outbreak, reports are perhaps routinely passed on without being taken serious note of. Further liaison between sentinel centres and the health administration of Municipal Corporations did not seem to exist. For example, Kalawati Saran Hospital in Delhi, an identified sentinel centre, looked after surveillance of polio cases. It has well maintained records of poliomyelitis cases. On an average, 2,600 cases were reported every year from the hospital showing an incidence of 2.28 per thousand children under five years of age. Shahadara, Najafgarh and West area of Delhi have been identified as the worst affected areas accounting for 37.97% of the cases. Nearly 20-25% of the cases of poliomyelitis had been reported amongst children who had been fully immunised with three doses of polio vaccine. There appeared to be a gradual upward trend in the reported cases of poliomyelitis even amongst the resident population of Delhi. Panag,\* *et al* while doing a study on the efficacy of polio vaccine

\* Panag *et al*, Efficiency of oral polio vaccine, Delhi.



have pointed out that there were pockets with high incidence of poliomyelitis in some areas of Delhi. Cases tend to cluster together. Children in these areas may be poorly protected by immunisation. In spite of all information at hand, at both national and local levels, with the Delhi Administration and Municipal Corporation, no note had been taken of this or no action was reported to have been taken to change the strategy to intensify action.

Madras Corporation has formed a polio surveillance committee which included the Director, Public Health and Preventive Medicine, and the Director of the Institute of Child Health as members. They were reported to meet monthly and review every poliomyelitis case reported and take appropriate action. Further, since 1988, the Institute of Child Health in Madras has started a 'Vaccination Reaction Clinic' operating 24 hours a day which attends to all adverse reaction cases.

The data on vaccine preventable diseases available at three different sources at the national level viz. Central Bureau of Health Intelligence (CBHI), NICD and UIP section in the Ministry of Health and Family Welfare showed discrepancies in the statement of disease incidence. Reports received are, by and large, neither complete nor reliable, hence, it will be presumptuous to draw any conclusions. This does not mean that we are being pessimistic; rather whatever the level of coverage, there has been some decline in the occurrence of vaccine preventable disease cases.

## SENTINEL CENTRES

Reducing the disease burden and mortality due to six vaccine preventable diseases amongst children and infants is the ultimate objective of UIP. The impact of the programme can be measured either by organising special disease surveys or establishing a system for continuous surveillance through sentinel centres.

Hospitals catering to the needs of the representative population of a specific area, with fairly good out-patient attendance and facilities to register and report cases have been identified as sentinel centres. Sentinel centres besides providing facilities for diagnosis and treatment of VPDs are also to be developed to provide more reliable and relevant information. It was believed that their contribution will help to understand epidemiological aspects like the incidence and trend of these diseases and to modify the strategy for control and prevention so as to achieve better results. With gradually increasing coverage of vaccination, it will be logical to presume that the incidence of vaccine preventable diseases will decline, and, hence, sentinel centres will have to assume greater responsibility in surveillance, policy decision and modification of operational strategies.

For this reason, the study of the role of sentinel centres was included in the National Review. About 37 sentinel centres located in the selected clusters were studied and an attempt was made to find out the roles played by them and their capability in assuming increasing responsibility in disease surveillance.



## Type of Hospitals Identified to Function as Sentinel Centres

Out of 37 centres, 14 were either general hospitals or district hospitals, six were hospitals attached to medical colleges, four were infectious diseases hospitals, one was a poliomyelitis hospital and one was a polio rehabilitation centre. Of the remaining 11, three PHCs and one CHC were identified as sentinel centres and others were either police hospitals, central referral hospitals or of unspecified category. Except the poliomyelitis hospital and rehabilitation centre, all other institutions had been identified as sentinel centres for all six vaccine preventable diseases.

## Population Served

Enquiries were made to understand the proportion of rural and urban population served by them; the limit of area as covered by them i.e. whether confined to their own State only or also extended to neighbouring States, as well as details regarding maintenance of records, their types and quality, etc.

With regard to details of population covered, 21 sentinel centres could not provide information about the population served by them. In seven sentinel centres, more than 50% of the population served by them was rural and in nine centres, the proportion was less than 50%.

The details regarding the limit of the area covered and the extension of services to neighbouring States are shown below

Details of Population Served		No	No Information
a.	People from neighbouring States use service	21	13
b.	Such people can be identified from records	18	12
c.	Patients coming to centre are representative of area	22	15
d.	Services provided for immunisation	32	5

While three centres could not provide any information, 21 reported that their services were being utilised by neighbouring States also, and 13 replied in the negative. Out of 21 whose services were utilised by neighbouring States, as many as 18 maintained records by which residents versus non-residents could be identified. 22 centres reported that patients receiving services were representative of the area, whereas 15 answered in the negative. A majority, i.e 32 out of 37 sentinel centres were providing immunisation services, whereas five were not.

## Daily Out-patient Attendance of VPDs

With reference to the case load of VPDs handled by these centres, 23 centres failed to give any satisfactory information about daily VPD attendance. Three



sentinel centres reported daily attendance to be of a very few cases i.e. even less than 1 case. Seven centres reported daily attendance of VPD cases as between one and five. Out of four infectious diseases hospitals, two reported an average daily attendance of 80 and above, whereas the remaining 2 reported around 35 as daily attendance.

### **Extent of Staff Orientation Towards Responsibilities of a Sentinel Centre**

If one officer or staff member in the centre had been identified specifically and oriented towards the proper running of a sentinel centre, its contribution could have been more meaningful. However, 20 centres had not identified anyone specifically responsible and hence, not oriented towards responsibility of the sentinel centre. Among the remaining 17 centres, eight had identified either DHO(3), DMO(1), DIO(1), or Dy.CMHO(3) to look after this area of responsibility. The statistical officer, medical record officer, pharmacist, etc. were identified for this purpose in the other nine centres.

Staff identified were trained by State level officers like Director of Health Services, State EPI Officer, district level officials and medical college faculty. The duration of the course varied from one day to three months. Staff at 12 sentinel centres had undergone training for a period of 1 - 7 days. Staff at four centres had undergone three months training either at national or State level. Generally, the courses were conducted at district/general hospitals (8), medical colleges (3), training institute (8) and the remaining at infectious diseases hospitals. However, it may be mentioned that training of short duration may not suffice. Therefore, monthly meetings may be used for reinforcement.

### **Type of Information on VPDs**

In a good recording system, information about VPDs should be maintained at the sentinel centres according to (a) age; (b) sex; (c) age of onset; (d) date of onset; (e) immunisation status; and (f) place of residence.

Information about details of VPDs record maintenance was available from 21 centres. No information was available from 16 centres. Of the 21, only 12 centres were maintaining information on VPDs according to all the above six aspects required of the cases. The details are as follows:

Information available	No. of sentinel centres
All 6 aspects (a to f)	12
All except immunisation status	2
All (a+b+c+d) except immunisation status and residence	4
Only age, sex and residence	2
Only age and sex	1



Further enquiries were made as to whether any information was maintained about the occurrence of disease after vaccination and the address of the health facility where the vaccination was given. Only 12 centres reported maintaining such information. However, out of these 12, only six could provide information about the institution where vaccination had been given.

It was also enquired if the record regarding TB was maintained according to the type of disease (childhood and adult tuberculosis). Only eight centres affirmed that they maintained records in such form, whereas 29 centres either failed to provide this information or did not maintain information according to the type of tuberculosis.

Regarding maintenance of records about complications of measles, only five centres reported that they maintained such records, whereas 32 reported in the negative.

It may be pertinent to remember that out of a large number of negative responses, it has been already reported that 23 centres had no satisfactory records for daily attendance of VPD cases, hence, their failure to maintain other records also.

### **Methods/Sources of Collection of Data on VPDs**

The various combinations of methods employed for collection of data by the sentinel centres are shown below:

<b>Methods</b>	<b>No. of Institutions</b>
1. Active surveillance, OP attendance in-patient service plus other source	1
2. Active surveillance, OP attendance and in-patient	2
3. OPD and in-patient	17
4. OPD alone	5
5. Active surveillance, OPD and others	1
6. In-patient alone	3
7. Reported by others	3
8. No information	5

Out-patient attendance (passive surveillance) was the major source of information and as many as 25 centres learnt about VPDs from out-patient attendance. However, four got support from active surveillance also.

### **Person Responsible for Maintaining Records**

Regarding this, 12 centres failed to provide any satisfactory answer. Of the 25 centres who responded, the persons responsible in 14 centres were non-medical,

like the health assistant, technician, medical social worker, medical record officer or statistical assistant. In the remaining 11 centres, records were being maintained by members of the medical profession. Regarding training of staff in record maintenance, in 11 centres, the staff had been trained, whereas in the remaining 26 centres, the staff had not been trained to maintain records. Training was carried out at either the district hospital by the district official or by the State EPI Officer. In two centres, the record staff had been trained at Safdarjang Hospital, Delhi.

### **System of Record Maintenance**

With reference to record maintenance, it was attempted to find out about the following

1. filing system;
2. coding and indexing;
3. completeness;
4. accuracy; and
5. retrievability

The extent of satisfaction regarding these aspects of the recording system in different surveillance centres is shown below:

<b>Satisfactory</b>	<b>No. of centres</b>
All aspects (1 to 5)	9
All except 5 (retrievability)	2
Filing-completeness and retrievability	1
Filing, accuracy, retrievability	1
Only filing	3
No Information or unreliable information	21

Only nine centres fulfilled all the criteria of the system of record maintenance, whereas 21 lacked credibility.

### **Laboratory Diagnosis Facility**

Nearly 23 sentinel centres had facilities for microscopic diagnosis for tuberculosis and diphtheria and four sentinel centres also reported diagnosis facilities for tetanus. Only three had microbiology facility for sero diagnosis of poliomyelitis and one for measles.

### **Authorities to which VPDs are Reported and Methods of Communication**

Of 37 sentinel centres, 26 stated that they sent their reports regularly. Out of these 26, 12 sent their information immediately through messengers or telegraphically to their senior officials like the Director Health Services, CMHO, DHO, principals of medical colleges. 14 sent information about VPD cases with the



regular monthly report. Having informed urgently about the cases, the details are generally sent in the monthly report. However, if an unusual number of cases are observed, then reporting of the disease is made through messenger or telephone/telegram. The remaining 11 did not follow any well defined pattern.

### **How Soon is the Action Taken**

Twelve centres reported that immediate action was taken on their reports and they were also informed about the action taken. The remaining centres failed to give any positive information, but reported that they generally received feedback.

More or less all the centres reported that no regular meetings were held with the health authorities nor was any guidance taken from them. However, sometimes, in the event of complication or death after immunisation, their cooperation was sought for. Similarly, in the event of outbreaks of disease, the health authorities spring into action which was generally in the nature of mass immunisation.

Only four officers incharge of sentinel centres reported having participated in field investigations of the reported cases.

The sentinel centre concept is laudable and if properly operationalised will become an important epidemiological arm of the total health system. Unfortunately, so far only very scant attention has been paid by most States to this component of the Immunisation Programme. There is urgent need to make these centres functional, train people for better maintenance of records and create awareness to use the information effectively.

### **DISEASE SURVEY (LAMENESS AND NEONATAL)**

The ultimate objective of the Immunisation Programme is to reduce mortality and morbidity including disability amongst children due to the six vaccine preventable diseases. The goal has been set to bring down the incidence of poliomyelitis to 5/1,00,000 population by 1990 and mortality due to neonatal tetanus to less than 1/1000 live-births. In the absence of any satisfactory disease surveillance system, survey for lameness due to paralytic poliomyelitis amongst children below five years of age provides useful information on the load of disease, thereby indicating the impact of the programme. Hence, lameness survey in children below 5 years of age was carried out as a part of the national review.

While the survey of lameness amongst children below five years will provide only an under-estimate of the problem, because many of them are still potentially susceptible to poliomyelitis, yet to estimate the impact of the scaling up of immunisation programme, it was perhaps the best alternative available. The inclusion of children over the age of five would have meant including children who were born much before 1985 and, therefore, had not been exposed to special inputs and efforts under UIP.



In the present study, the lameness survey was conducted in 35 districts spread over 18 major States and eight units/zones of four metropolitan cities. However, the data for one district has not been included. Hence, the results of only 42 units are highlighted (Appendix XXXVI).

In all, 4,23,201 children below five years were enlisted and surveyed. Amongst them, 1149 were found to be lame due to paralytic poliomyelitis giving a prevalence rate of 2.71 per thousand children below five years. After applying a correction factor of 1.25 for paralysis of the upper limbs and 1.33 for migration and death, the prevalence rate came to 4.5 per thousand children below five years of age and the incidence rate to 0.90 per thousand. The proportion of lameness due to paralytic poliomyelitis to total lameness was found to be 66.37%.

A wide variation in the prevalence of total lameness and lameness due to paralytic poliomyelitis in different districts and urban zones has been observed. The prevalence for total lameness was found to be lowest at 0.792 per thousand children below five years in the north district of Goa, as against the highest value of 12.10 in district Kanpur Dehat of U.P. With regard to prevalence of paralytic poliomyelitis, after applying corrections for upper limbs, migration and deaths, in district Dibrugarh (Assam), the prevalence of paralytic poliomyelitis was found to be the lowest i.e. 0.32 per thousand, whereas once again district Kanpur Dehat showed the highest rate of prevalence, i.e. 14.58 per thousand. Table 29 shows the distribution of districts with different rates of prevalence for paralytic poliomyelitis after applying correction factors.

**Table 29**

*Distribution of Districts units According to Prevalence Rate of Paralytic Poliomyelitis*

Prevalence/1000 children under 5 years	No. of Districts
< 1	6
2	6
3	8
4	2
5	5
5 +	15
	<b>42</b>

Of the two ends of the scale, at one end, in the five districts viz. Dibrugarh (Assam), North Goa, Shimla (H.P.) Pune and one unit each of Bombay and Madras metros, the prevalence rate of paralytic poliomyelitis was found to be less than 1/



1000. Dibrugarh had a prevalence rate of less than 0.5/1000. On the other end of scale, in as many as 15 districts, the prevalence rate of lameness due to paralytic poliomyelitis was found to be more than 5/1000. These districts are Katihar (Bihar), Anantnag and Badgam (J&K), Bijapur (Karnataka), West Nimar (M.P.), Ganjam (Orissa), Warangal (A.P.), Bharatpur and Jhalawar (Rajasthan), South Arcot (Tamil Nadu), Hissar (Haryana), Sangrur (Punjab), Meerut and Kanpur Dehat in U.P. Out of these 10 districts, three districts viz. Bijapur, Bharatpur and Kanpur reported a prevalence rate of more than 10/1000. Even Meerut showed a high prevalence rate of 9.92/1000. The prevalence rate in remaining 23 districts ranged between 1 and 4.

A comparison between districts within the State which were included in UIP earlier in 1985-87 and those included later in 1987-88 showed that as many as eight districts among the latter group had a lower prevalence rate due to paralytic poliomyelitis, as compared to the earlier districts in the same State viz. Singbhum (Bihar), Rajkot (Gujarat), Shimla (Himachal Pradesh), Badgam (J&K), Tumkur (Karnataka), Mandla (Madhya Pradesh), Sambalpur (Orissa) and Jhalawar (Rajasthan).

Similarly, variation in prevalence rates was observed between the two zones of the metros. For example, in Bombay, zone A showed a prevalence of 0.7/1000 children under five years whereas in zone B, it was found to be 3.16/1000. Similarly, in Delhi, the zone comprising Najafgarh, Narela and Shahadara reported a prevalence rate 3.43/1000 as against 1.94 in the zone comprising Civil Lines, etc. In Madras, in the south zone, the prevalence rate was found to be as low as 0.74/1000 against 2.85 in the north zone. No variation was observed between the zones of Calcutta. The wide range of variation in prevalence throughout the country and within same State, raises many questions relevant to the programme's implementation.

The proportion of lameness due to paralytic poliomyelitis to total lameness ranged between 13.3% (Pune) to 100% in Bhiwani. With reference to this proportion, excluding Hissar and West Nimar, (which had over 90% of the total) and Dibrugarh and Calcutta (which had less than 30%), in all the other units the proportion of lameness due to paralytic poliomyelitis to total lameness ranged between 40 to 80%. It appears that poliomyelitis still remains a prime cause of lameness in childhood.

Though no uniform pattern of sex differentiation of paralytic poliomyelitis cases was perceptible and reported, it appears from reports that more male children were affected than female children.

The age of onset of poliomyelitis among the detected cases, in the study districts ranged between two months to two years. However, a number of districts viz. Dibrugarh, Nowgaon, Ganjam, Sambalpur and Delhi, reported onset before six months of age. In one zone in Delhi and in district Ganjam, the age of onset of some of cases reported was below three months of age. From Maharashtra, 68% of the



cases were reported to occur before 1 year of age. Out of these, 45% were reported to have occurred below 6 months of age. The occurrence of cases below three months of age poses a very serious and urgent problem, because this will require an entirely revised strategy for the administration of the polio vaccine.

Another important feature observed was the finding of a large number of cases being detected from within few clusters or zones. For example, in Ganjam (Orissa), in one cluster as many as 13 lame children were found. Among them, as many as 12 were due to poliomyelitis. Out of a total of 57 cases of paralytic poliomyelitis in district Ganjam, as many as 36 cases were found in only four clusters. Similarly, pockets of high incidence have been identified in Delhi also.

With regard to immunisation status against poliomyelitis among the detected cases, in some of districts/units, 10-30% of the children found to be suffering from paralytic poliomyelitis were reported to have received three doses of OPV. Such a high proportion of fully protected children suffering from poliomyelitis immediately raises issues related to: 1. quality of vaccine administered (due to production defect or cold chain maintenance defects); 2. adequacy and scheduling of number of doses.

Since the procurement, blending and distribution of oral polio vaccine is done through the public sector (HBPCL, Bombay), one cannot suspect that they will compromise with the standard of good quality of vaccine. However, faulty maintenance of the cold chain during transit at different levels could be one factor responsible for this observation. In various studies, including the present one, poor maintenance of the cold chain system, particularly below the level of PHC in many States, have also been reported.

## NEONATAL TETANUS MORTALITY SURVEY

The survey of neonatal tetanus (NNT) mortality was undertaken to find out the impact of TT immunisation coverage of pregnant women. It was carried out by enlisting 70 live births during the period 8th May, 1988 to 7th May, 1989, in each cluster. Thus, in every district, around 2,000 births were recorded. All deaths within one month of birth were investigated to elicit the cause of death.

Since the fatality rate due to NNT is around 80%, survey of mortality due to NNT does not reveal the actual load of all the neonatal tetanus cases. Despite this limitation, it gives us a fairly clear indication about the magnitude of the problem. Besides, there is generally under-reporting due to poor recall either of the event of infant death or the probable cause of death.

### Neonatal Mortality (NNM)

The results of the survey revealed that neonatal mortality (NNM) rate was less than 5/1000 live births in five districts viz. Goa, Quilon (Kerala), Sangrur



(Punjab), South Arcot and Coimbatore in Tamil Nadu. In 16 districts, neonatal mortality rate ranged between 11-25 per thousand live births (Appendix XXXVII and Table 30).

Neonatal mortality rate more than 25/1000 live births was found in three districts viz. Anantnag and Badgam (J&K) and Kanpur Dehat in Uttar Pradesh. NNM rate as high as 38.1 per thousand live births was observed in Badgam followed by Kanpur Dehat reporting 33.49.

**Table 30**

*Distribution of Districts According to Neonatal Mortality Rate*

NNM rate	No. of districts
< 5	5
5-10	9
11-25	16
25 +	3
	33

**Table 31**

*Name of Districts According to NNM Rate*

NNM Rate per 1000 live births	No.	Districts
< 5	5	Goa, Quilon, Kasargode, Sangrur, Coimbatore
5-10	10	Warangal, Nowgaon, Rajkot, Bilaspur, Bhiwani, West Nimar, Pune, Patiala, South Arcot, Murshidabad
11-25	15	Cuddapah, Dibrugarh, Katihar, Singhbhum, Panchma- hal, Hissar, Shimla, Bijapur, Tumkur, Mandla, Ganjam, Sambalpur, Bharatpur, Jhalawar, Meerut,
25 +	3	Anantnag, Badgam, Kanpur
Data not available	2	Nanded, Burdwan

## Neonatal Tetanus Mortality

The data on mortality due to Neonatal Tetanus (NNT) in different districts is shown in Table 32.

In as many as 10 units, mortality due to NNT was less than 1/1000 live births. As a matter of fact, in eight units viz. Pune (Maharashtra), Coimbatore (Tamil Nadu), Quilon and Kasargode (Kerala), Goa, Calcutta II and Madras North and South, no deaths due to neonatal tetanus were reported. In Kanpur Dehat (U.P.), the highest mortality rate i.e. 23.72 per 1000 live births due to NNT was reported and in Jhalawar

(Rajasthan), this rate was 10.08 per 1000 live births. In about 13 districts, mortality rate due to NNT was observed to be between 1-5 per thousand live births, whereas 10 districts reported a mortality rate of more than 5 per thousand live births.

**Table 32**

*Distribution of Districts According to NNT Mortality Rates*

NNT Mortality rate per 1000 Live Births	No. of Districts/Units
0	5
< 1	8
1-2	3
2-3	3
3-5	4
5-10	8
10 +	2
Data not available	2
	35

**Proportional Mortality Due to Neonatal Tetanus**

Proportional mortality due to NNT out of total neonatal mortality was found to be less than 10% in seven districts. In West Nimar (M.P.), all the five neonatal deaths recorded, were found on investigation to be due to neonatal tetanus. In Kanpur Dehat proportional mortality due to neonatal tetanus was 70%. Proportional mortality of more than 50% was observed in two districts i.e. Katihar (Bihar) and Jhalawar (Rajasthan).

**Table 33**

*Name of Districts According to Proportional Mortality Rate due to Neonatal Tetanus out of Total Neonatal Mortality*

Proportional Mortality due to NNT	Districts
0	Goa, Quilon, Kasargode, Nanded, Pune, Coimbatore
< 10	Warangal, Rajkot, Tumkur, Mandla, Sangrur, Bilaspur, Patiala
10-25	Cuddapah, Nowgaon, Badgam, Ganjam, Panchmahal, Bijapur, Sambalpur
26-50	Dibrugarh, Bhiwani, Anantnag, South Arcot, Murshidabad, Singhbhum, Hissar, Bharatpur, Meerut
50 +	Katihar, Jhalawar, Kanpur.



## Coordination

It was found that for achieving coordination, between health and other related sectors, formal committees were constituted at different levels such as Central, State and district levels which review the 20 point programmes, including immunisation. In addition, most States had separate coordination committees under the chairmanship of the Health Secretary and involving other important departments/organisations like education, social welfare, medical education, UNICEF, etc. Similarly, at the district level also, coordination committees were constituted in most States with the Deputy Commissioner as the chairman and representatives from agencies like social welfare, military hospital, Central Government representatives from railways, etc. as members. In a very limited number of States, at the subdivisional/block level also, some similar committees were reported e.g. Goa and Punjab. Though they were constituted, they were reported to be non functional at many places and meetings of such committees were also not regular. Moreover the actual mechanism for achieving coordination or cooperation between member agencies was also not clear. Coordination committees exclusively for UIP with the concerned agencies were rare. In Goa, two State level committees existed viz. the mass education and media committee and intermedia publicity committee both of which had members from Medical and Health Directorate and they worked out the need for support of the media to health programmes, in general, and for UIP also. In Haryana, a coordination committee for the Technology Mission and one to look after the urban immunisation were also reported.

During the review, an attempt was made to understand the mechanism of coordination of immunisation activities at the district level. Out of the total 41 districts from where data could be obtained, 23 had reported having established coordination committees at the district level, 13 exclusively for immunisation and 10 for general purposes where immunisation was one among the programmes discussed. In 11 districts, no such coordination committees existed. In a majority of the districts (22) where such committees existed, their meetings



were held almost regularly i.e. monthly in 14 districts and quarterly in eight districts. In two districts, there was no fixed schedule and in another two districts, meetings were held once in two months and six months respectively. Only in one district, the committee was stated to be nonfunctional for the last two years, i.e. in Bharatpur. In all the 23 districts, the committee discussed different aspects of the Immunisation Programme. While major emphasis in these discussions were on programme achievements (15), other aspects like means for increased publicity, mechanisms for better coordination between different agencies, methods for involvement of NGOs and people at large in the programme, problems related to supplies, strategies for better coverage of backward sections in the community and urban population, etc. also received attention in some such meetings. With the exception of two districts, other districts used to maintain the minutes of such meetings.

The district authorities were further asked about the nature of the linkage that existed between the district HQ administration and other institutions within the district like medical colleges, urban health institutions etc. with particular reference to Immunisation Programme. It was encouraging to note that a majority of the districts had some kind of functional linkage established with such institutions, particularly district hospitals, post partum centres, etc. In some, municipal institutions or medical colleges, ESI dispensaries etc. were also included. Exceptions were only three districts (Bilaspur, Panchmahal, Mokochung) and from nine districts, this information could not be obtained (South Arcot, Bharatpur, Sambalpur, West Nimar, Anantnag, Cuddapah, Dibrugarh, South Tripura and Meghalaya). With reference to the specific aspects of the programme for which linkages were established with different institutions, the following were considered; viz. target allocation, area distribution, supply of resources, training of staff, supervision, reporting of activities, joint teamwork, IEC, etc. In 12 districts, linkages were established among institutions in relation to all the above aspects. In another seven also, linkages in most of the above aspects were established except IEC, joint team work and target division. Among others, the linkages were mostly by way of supply of vaccines and or collection of performance reports and training of staff.

The district officials further stated that the mechanism adopted by them to ensure coordination with these agencies or institutions was mostly through review of performance reports - often during meetings, but otherwise also - and less often through written communication like circulars.

## ROLE OF MEDICAL COLLEGES

Medical colleges were expected to play a very significant role under UIP because of their large contribution towards health manpower resource. While



initiating the UIP in 1985-86, 50 medical colleges were selected and gradually other medical colleges were also being associated with the programme. It was envisaged that they will be responsible for providing immunisation coverage to the beneficiaries in their catchment area covering three PHCs attached to each of these college, and an urban population of nearly five lakhs. The medical colleges were expected to function in close coordination with the district health authorities in implementing this programme. With the active involvement of teachers, students and interns, it was also hoped that these colleges will contribute considerably in organising training of health functionaries. With the help of consultancy from specialists, better diagnostic facilities, and better record keeping it was hoped that the paediatrics wing of teaching hospitals will be ideal sentinel centres for VPDs. Further, with the academic excellence and specific facilities available, it is also expected to develop a surveillance system and to carry out independent periodic evaluation of immunisation in the district. For this purpose, it was planned to provide financial assistance to the colleges for POL and incentive money to interns for participation in the Immunisation Programme, etc. UNICEF also gives financial assistance to medical colleges, for carrying out independent evaluation surveys. Post partum (PP) units attached to medical colleges were already expected to provide TT to pregnant women, and new borns are regularly being given BCG vaccination after birth before being discharged from the hospital in many States. Also, the post partum units have the responsibility of providing child welfare service including immunisation in the hospital and also to extend the services to the community through the urban MCH and FW centres. Besides, several medical colleges were already running immunisation clinics either through the Department of PSM or Paediatrics. The paediatricians in the post partum centres and the child care unit were expected to provide training to the medical and paramedical personnel in the district. This linkage between the district, the medical college faculty, and its Rural Health Centres could also provide research support to the programme. Thus, it was hoped that with adequate inputs, these medical colleges will be able to rise to meet the challenges of our national goal of protecting 100% of pregnant women and 85% of infants in their areas.

Keeping the above facts in mind, the medical colleges at the district HQs under review or at State Directorates were visited and an attempt was made to assess the role played by them in the programme.

A study was done by visiting the medical college and discussing their programme with the respective heads of department of the post partum units, Preventive and Social Medicine (PSM) and Paediatrics. Their immunisation clinics at the hospital, MCH centres and the field were also visited wherever feasible. In addition, the sentinel centres at the colleges were also reviewed.



## General Observations

Almost all the medical colleges were involved in giving immunisation service either through their fixed clinics or through special camps in both urban and rural areas. Fixed clinic services were largely confined to urban health centres, post partum centre or immunisation clinics. In the rural areas, camp approach was mostly used. Medical colleges, by and large, did not have any plan of action or a well spelt out specific strategy. In some of the medical colleges, three departments viz Obstetrics and Gynaecology through post partum units, Paediatrics and PSM, run their immunisation services. However, there was absence of any kind of coordination between them and in some there was no demarcated areas of responsibility for this service. Such a situation was seen in some colleges of Tamil Nadu, Bihar, U.P., West Bengal, etc.

In many places, the quality of service provided in terms of observing the principle of one syringe for one injection, maintenance of the cold chain, protecting vaccine potency by putting it on ice with proper care, etc. were also found deficient, as observed during the immunisation sessions at clinics or in the field.

Involvement of medical colleges in imparting training to UIP staff of the district was not found to be as appreciable as expected. Mostly, they played a major role in the training of ICDS functionaries like AWWs, where immunisation formed a part of the course. However, this role is gradually being expanded. For example, a core group of trainers has been formed in Bihar for training the health staff. This core group includes teachers from medical colleges alongwith other public health experts. In Andhra Pradesh, the medical colleges were being actively involved in the training of health functionaries. Medical college teachers in M.P., U.P., Rajasthan, Karnataka, etc. were also coming forward with more active enthusiasm to share the responsibility of training with the district/State authorities.

With regard to coverage evaluation of immunisation, by and large, in almost all the States excepting West Bengal, medical colleges have been actively involved, with the assistance of UNICEF. For example, all the four medical colleges of Delhi were extensively involved in carrying out coverage evaluation in Delhi in 1988. In Kerala, U.P., Karnataka, A.P., etc. the medical colleges were involved in such evaluation surveys.

## Coordination with Health Services

In most of the States, medical colleges are under the administrative control of the Directorate Medical Education (DME) while UIP is the responsibility of the DHS. Therefore, there had been problems due to lack of coordination between the two Directorates e.g. in Maharashtra, West Bengal, M.P., U.P., Karnataka, Punjab,



Bihar, etc. On the other hand, in States like Rajasthan, Gujarat, Haryana, etc., there seemed to be more cooperation and coordination between them in implementing the programme. In most of the States, medical colleges and hospitals have been designated as sentinel centres for surveillance of VPDs. However, the role of medical colleges in this function was found to be disappointing, e.g. the role of medical colleges in the investigation of VPD outbreaks or verification and community action against VPDs was found to be practically negligible. Sentinel centres at medical colleges were generally still at the initial developmental stage in many States like Bihar, Orissa, etc. In some places, it was mentioned that even though the Department of Paediatrics had the information/data on the diseases, this could not be made use of for proper analysis and reporting due to want of support/coordination from other departments like PSM.

Five indicators were identified to assess their role :

1. Providing better quality of service,
2. Involvement in training for UIP,
3. Role of sentinel centre,
4. Involvement in coverage evaluation, and
5. Cooperation and coordination with States.

The involvement of medical colleges was rated as follows:

Indicator	Grade
Carrying out four or all activities	Good
Only three	Satisfactory
Only two or less	Marginal

Accordingly, in seven States, namely, Assam, Goa, Haryana, Gujarat, Kerala, Rajasthan and in Bombay Municipal Corporation, the involvement of medical colleges could be rated as good. Whereas in a few other States like West Bengal, Calcutta Corporation, J & K, Maharashtra, Karnataka, H.P., Bihar and Punjab, it was marginal. In the remaining States like M.P., Orissa, Tamil Nadu, U.P., Delhi and Madras Corporation they were playing a satisfactory role.

In Karnataka, funds to private medical colleges under UIP were not released and this caused problems. Even otherwise complaints like delay in receipt of funds, shortage of transport facility and manpower were often made by most of the colleges.

Another problem posed by a few medical colleges was due to the fact that PHCs under the ROME scheme, had still not been brought under the administrative control of medical colleges and, hence, there were difficulties in relation to mutual cooperation between PHC staff, medical college faculty and staff, as well as in



supervision and monitoring. Ideally, the urban population in the district where a medical college is involved in UIP has to be clearly demarcated with specific area responsibility for implementing the programme and this needs to be done in close coordination with the State/district authorities. However, this was not effectively done in a few places and, therefore, the services rendered by medical colleges were more ad hoc rather than based on actual enumeration of eligibles and selection of proper strategies for covering them adequately.

With regard to the training of faculty of medical colleges in immunisation, it was encouraging to note that most of the medical colleges have adequately trained faculty. The faculty members were being trained mostly at the national level at NICD/NIHFW. However, in certain situations, even without having been trained formally, faculty from medical colleges were involved in imparting training to the health functionaries.

In general, the problems faced by medical colleges with regard to supply of vaccines, cold chain equipment or other supplies were not reported, while some colleges felt that additional manpower should have been provided to them under UIP since this was an added responsibility given to them. Consequently, the colleges have adopted the static session strategy. They are not playing a significant role in social mobilisation.

Some colleges are also stated to have taken advantage of this responsibility in imparting proper training to students and interns, particularly in the organisational aspects of immunisation like survey and enumeration of eligibles and motivation/education to the community regarding immunisation and organising services, etc.

## **ROLE OF ICDS IN IMMUNISATION**

ICDS is a programme working towards the goal of enhancing child survival through preventive and promotive measures and female education. The Anganwadi Worker (AWW) is the key functionary, who looks after, on an average, about 1,000 population, working generally with women and children. Amongst her many responsibilities a few are enumeration of children for immunisation, persuading mothers to get their children immunised and assisting ANMs in providing antenatal and immunisation services, etc. Therefore, it has been rightly presumed that involvement of ICDS and its functionaries in general and Anganwadi Workers in particular will boost up the programme.

It was for this reason that role of AWW and ICDS and the extent of involvement in the programme were studied. In all the villages and urban areas where coverage evaluation was carried out, all anganwadi workers were interviewed to gain understanding about their role in the immunisation programme. Likewise,



ANMs were asked about the type of assistance they received from the Anganwadi Worker. Similarly, an attempt was made to find out the extent of coordination between health and ICDS activities at various levels.

It is gratifying to observe that barring a few States like West Bengal, J&K, Madhya Pradesh and Calcutta Corporation, the level of involvement of Anganwadi Workers in the Immunisation Programme was highly satisfactory. Anganwadi Workers in most of the States were reported to keep records of eligible children, collect and organise the beneficiaries for immunisation, educate and motivate mothers and assist ANMs in organising immunisation sessions.

In Delhi, in slum areas particularly, high immunisation coverage, to a large extent could be ascribed to the active involvement of Anganwadi Workers.

In Karnataka, it was reported that the CDPO had earmarked jeep for two days to the MO PHC for facilitating immunisation services. Also Rs.7,500 per year was allotted to meet the expenses of POL for immunisation work from the ICDS resources.

In Arunachal Pradesh, ICDS in East Siang district, covered two CD blocks and shouldered the major responsibility of providing immunisation services to all, particularly to people in the remote and cut off areas, with special efforts and in close cooperation with the health team.

In the State of Haryana, there was a district level committee for ICDS where the Immunisation Programme was being regularly reviewed. In Gujarat, during immunisation sessions, the assistance of Anganwadi Worker was always taken.

In U.P., Mondays had been fixed for the immunisation session to be held at Anganwadis, thereby ensuring the regular and active involvement of ICDS in the programme.

It may, however, be pointed that inspite of active support from Anganwadi Workers there are wide inter-district variations in the extent of their support even within the same State. For example, in Haryana, the involvement of Anganwadi Worker in Hissar district was very poor, while in Bhiwani it was quite appreciable.

Anganwadi Workers were found to have good knowledge of the immunisation schedule and contraindications, etc. However, they have to be trained for identification of VPDs so that they can play a significant role in the surveillance of VPDs.

Under the ICDS programme, it is envisaged that during sectorial meetings, reinforcement of their knowledge through continuing education on all subjects, including immunisation, should be an important activity. It will be appropriate if due emphasis is given to cover topics related to immunisation as well. This would not only improve achievement under Immunisation Programme, but would also help the ICDS scheme to achieve its major goal of promoting child development.



In J&K, the scheme of Rehabar-e-Sehat was introduced where school teachers were trained in health programmes and were expected to act as primary health care workers, almost equivalent to Health Guides in other States. But it was surprising to find that the scheme did not bear fruit as per expectations with reference to primary health care including immunisation. One of the contributing factors for this was the logistics problems wherein the geographic area and beneficiary population to be covered by the teacher, the school where he/she is posted and the place of residence were not coterminous.

## **ROLE OF HEALTH GUIDES AND ANGANWADI WORKERS IN UIP**

The HG and AWW are important links between the community and peripheral health workers. Being the sons and daughters of the soil, it is believed that they would act as agents for change and provide strong support to health care delivery. While planning strategies for UIP, high hopes had been pinned on these key functionaries.

To assess their contribution towards UIP, both HGs and AWWs from rural clusters were interviewed. The following major areas were looked into:

- a. Level of knowledge about various major components of the Immunisation Programme.
- b. Role played by them in the programme.
- c. Help provided to the health worker.
- d. Efforts towards educating the community
- e. Their perception about the reaction of members of the community towards the Immunisation Programme.

Out of 1036 rural clusters, in 593 clusters either HG or AWWs were present. Thus, 299 HGs and 294 AWWs were interviewed. All of them had been trained before their initiation in either of the two roles. More than half of them, i.e. 53.84% out of 299 HGs and 56.2% out of 294 AWWs had also undergone reorientation training. A vast majority among them i.e. 91.4% of HGs and 92.52% of AWWs revealed that during their training, the Immunisation Programme and their role in it had been covered.

### **Level of Knowledge about Immunisation**

To assess their level of knowledge, the following five areas were selected :

- a. Names of Vaccine Preventable Diseases
- b. Immunisation schedule
- c. Contraindications of immunisation
- d. Complications of Immunization
- e. Early signs and symptoms of Vaccine Preventable Diseases

To grade their knowledge, it was decided that if more than 95% of the questions were correctly answered, the level of knowledge may be graded as 'very



good'. If the candidates answered 75-94% of the questions correctly, it may be graded 'good', 50-74% as average and below 50% as poor.

The Table 34 and 35 depict the distribution of Health Guides and Anganwadi Workers according to their knowledge in different areas related to the Immunisation Programme.

**Table 34**

*Distribution of Health Guides According to Level of Knowledge about Immunisation*

Components of Programme	% of HGs with level of knowledge			
	V. Good	Good	Average	Poor
a. Names of Vaccine Preventable Diseases	26.13	34.8	24.6	14.3
b. Immunisation schedule	22.4	27.2	26.2	24.2
c. Contraindications of Immunisation	14.0	31.4	27.4	31.2
d. Complications of Immunisation	14.6	33.0	30.4	22.0
e. Early signs and symptoms of vaccine preventable diseases	13.2	33.0	35.2	18.4

**Table 35**

*Distribution of Anganwadi Workers According to Level of Knowledge about Immunisation*

Components of Programme	% of AWWs with level of knowledge			
	V. Good	Good	Average	Poor
a. Names of Vaccine Preventable Diseases	46.06	31.09	18.2	4.65
b. Immunisation Schedule	40.6	28.2	16.4	15.2
c. Contraindications of Immunisation	24.2	33.8	22	20.6
d. Complications of Immunisation	24.1	36.2	23	16.8
e. Early signs and symptoms of vaccine preventable disease	21.4	32.5	28.2	18.8

From the above Tables two important facts emerge :

1. A higher proportion of Health Guides and Anganwadi Workers showed a very good level of knowledge about the names of the vaccine preventable diseases and immunisation schedules. However, the same level of knowledge was not depicted for contraindications, complications of immunisation and early signs of vaccine preventable diseases. The level of knowledge from average to poor increased gradually.
2. Anganwadi Workers showed a better level of knowledge than HGs. For example, only 61% of HGs scored from good to very good in knowledge for naming the vaccine preventable diseases as against 78% AWWs. Similarly, 39% of HGs and 22% of AWWs scored from average to poor.

With regard to immunisation scheduled, nearly an equal proportion of HGs scored on two ends of the scale i.e. good, very good and average to poor i.e. 49%.

Only 45% of Health Guides were rated good to very good for their knowledge about contraindication of immunisation. As many as 31.2% were rated poor in this area, whereas amongst AWWs, 58% were rated good or very good and 20.6% were rated poor, in the above area. However, proportions with rating of poor knowledge regarding complications of immunisation and early signs and symptoms of VPDs was nearly the same for HGs and AWWs i.e. 22% and 18.4% respectively.

Around 40% of HGs and 46% of AWWs said that VPD cases were demonstrated to them during their training. Nearly 65% of HGs, and 55% of AWWs had attended immunisation sessions during training.

### Role Towards Immunisation Programme

The Table below depicts various activities performed by HGs and AWWs in connection with the Immunisation Programme.

**Table 36**

*Activities Performed by HGs and AWWs in Immunisation Programme*

Nature of Activities	Health Guide (%)	Anganwadi Worker (%)
- Inform mothers about immunisation	92.4	94.1
- Persuade beneficiaries for immunisation	82.0	84.2
- Remind them of due date	68.0	76.4
- Allay fears regarding immunisation	61.0	64.2
- Treat complications	33.0	29.0
- Refer to PHC/Hospital/Subcentre	61.0	66.2



From the above Table it is clear that both groups of workers matched fairly well in various activities performed in the Immunisation Programme. Less than 33% treated complications whereas nearly two-third of them referred cases to the PHC, subcentre etc. The educational and motivational roles played by the two categories are fairly evident.

## Help to Health Workers

The Table below shows the various areas related to immunisation in which HGs and AWWs give their support to Health Workers.

**Table 37**

*Nature of support provided to Health Workers by HGs and AWWs  
in Immunisation Programme*

Nature of support to Health Workers	Health Guide	Anganwadi Worker
	(%)	(%)
- Organising immunisation sessions	68.6	66.4
- Calling beneficiaries	85.2	89.0
- Reporting complications due to immunisation	54.2	51.2
- Reporting about cases of Vaccine Preventable Diseases	41.2	45.2
- Informing about community reaction to programme	47.6	46.2

It is of interest that the areas in which assistance is provided to the health workers are approximately equal for both groups of workers.

Around 44.4% of the Health Guides and 49.6% of the Anganwadi Workers spend four or less than four hours per week on immunisation, whereas the remaining claim to give more than five to 12 hours per week.

Two other activities under the Immunisation Programme which these workers are expected to carry out, are related to listing of eligibles and maintenance of certain registers. Careful review of these shows an interesting difference.

It will be seen from the Table 38, that nearly 80% of the Anganwadi Workers maintain lists of births, pregnant women, and infants below one year as against 48% of the Health Guides. Further, nearly 94% of the Anganwadi Workers record these events in a register whereas only 50% of the health guides maintain a register. The rest either maintain the same on loose papers or rely on their memory.



Table 38

*Distribution of HGs and AWWs According to Their Role in  
Listing Eligibles and Maintaining Records*

	Health Guide(%)	AWW (%)
<i>Preparelist of following</i>		
- Births	54.0	83.2
- Pregnant women	48.2	81.2
- Infants (under one year)	48.4	79.2
<i>Maintain information</i>		
- Register	50.69	98.0
- List on loose paper	28.4	7.4
- Memory	25.0	7.8

## COMMUNITY EDUCATION

### Educational Material

About 40.6% of HGs and 57.2% of AWWs informed that they had been provided with posters, charts, etc. Around 2% claimed to have received tapes and videos also. 13.2% of the Health Guides and 9.2% of the Anganwadi Workers did not use these materials at all, whereas 41% of HGs and 54% AWWs claimed to use the materials frequently. The same number of HGs reported that they used these only occasionally.

### Perception Among HGs and AWWs about People's Reaction Towards Immunisation

The Tables below indicated the perception of HGs and AWWs about people's reaction towards immunisation. 86% of HGs and 84% of AWWs believed that people accept immunisation willingly.

Table 39

*Distribution of HGs According to Perception About  
People's Reaction to Immunisation*

	% of HGs responding		
	Most	Some	None
<i>People's reaction</i>			
People in my area know about immunisation	70.0	28.0	1.4
People are cooperative and willing	66.6	31.2	1.2
People are indifferent but do not resist	8.2	56.4	28.2
People resist immunisation and have to be coaxed	4.8	37.2	54.2



Table 40

*Distribution of AWW According to Perception about  
People's Reaction to Immunisation*

	% of AWWs responding		
	Most	Some	None
<i>People's reaction</i>			
People in my area know about immunisation	66.0	31.6	1.2
People are cooperative and willing	66.2	32.1	2.2
People are indifferent but do not resist	12.2	58.4	35.2
People resist immunisation and have to be coaxed	6.0	38.4	59.4

It may be seen that perceptions of both groups of workers about people's reaction towards the Immunisation Programme are approximately the same. According to a negligible proportion (1.4% and 1.2% respectively) of HGs and AWWs, people did not know about immunisation. However, as stated by 66% of both HGs and AWWs most parents knew about immunisation and were cooperating and willing to accept the immunisation services. Again, a much smaller proportion, 8.2% of HGs and 12.2% AWWs, felt that most parents were indifferent to the programme, though they did not resist. With regard to people's resistance to the programme, among HGs, 54.2% felt that none were resistant, whereas 37.2% felt that some showed resistance and 4.8% felt that most parents showed resistance and, therefore, had to be coaxed into accepting the services. Almost an equal type of response was received from AWWs also in this regard.

## ROLE OF VOLUNTARY AGENCIES IN IMMUNISATION

Appreciating the significant role that the voluntary agencies can play, the Government of India have urged upon the State Governments to prepare a directory of voluntary organisations in each district and approach them for seeking their participation in family welfare, including the Immunisation Programme. The State Governments were urged to extend full assistance to the major national voluntary organisations and their branches to get the maximum benefit of their participation.

The Central Government has gone to the extent of providing financial assistance (grant-in-aid) under which voluntary organisations seek assistance SCOVA Scheme, a scheme for setting up mini-family welfare centres for the promotion of MCH, immunisation and small family norm has also been initiated, but there do not seem to be many takers.



There are a number of voluntary agencies functioning in different parts of India, like the Rotary Club, Lions Club, Jaycees Club, Women's Organisation, YMCA, Rama Krishna Mission, IMA, Christian Missionary Institutions, Family Planning Association of India, Indian Paediatric Association, Impact, etc. They are, in one way or the other, extending their services for the benefit of the community, in general, and the poor and vulnerable sections, in particular. The range and scope of activities and services rendered by them in the field of health vary considerably. However, a number of such agencies have shown considerable interest in immunisation activities also. For instance, in State of Maharashtra a total of about 124 voluntary organisations were reported to be actively participating in the Immunisation Programme. It was for these reasons that their role in the Immunisation Programme in the various districts and States as a whole was studied.

Four areas were identified where voluntary agencies could play some important role in the Immunisation Programme, viz. (i) resource mobilisation; (ii) publicity and demand generation; (iii) Organising special drives for immunisation or assisting in special drives, (iv) providing active regular immunisation services. Except for five districts like Badgaon in J & K, West Nimar and Mandla in Madhya Pradesh, Kanpur Dehat in U.P., and Burdwan in West Bengal, in all the other districts, voluntary organisations were reported to be functioning. The number of voluntary agencies (including charitable hospitals and dispensaries) ranged from 1 to 10 - the maximum being reported from Bihar, Haryana and Tamil Nadu.

In all, they totalled up to 137 organisations/units within the districts covered during review (mostly branches of national organisations) except for a few local or specific ones like Bhagini Samaj in Gujarat, Shashtra Sahitya Parishad in Kerala, Suraksha Society in Hyderabad and rural development projects under the Dairy Cooperative Society in Bihar and Rajasthan (Appendix XXXVIII).

Of the total 137 voluntary organisations/units in all the districts, only 113 were involved in one way or another in the Immunisation Programme. Of the 113 organisations, only 13 were helping in resource mobilisation. Rotary International, Lions Club, Jaycees, Giants and Impact have helped in procuring resources like vaccines, syringes, publicity materials, etc.

As many as 82 voluntary agencies actively assisted in demand generation and publicity by organising rallies and providing banners, organising talks in their clubs, or organising melas and special programmes in socio-economically handicapped areas to educate the community about the small family norm, including programmes for child survival like ORS, immunisation, etc.

Around 81 voluntary organisations helped in organising special campaigns for immunisation. These organisations took the assistance of private medical practitioners to provide the services. The district administration or PHC came forward to provide vaccines. During special campaigns, these organisations not



only motivate the beneficiaries, but also distribute gifts like packets of biscuits, toys, soap, etc. They assist teams of doctors in organising immunisation sessions, queuing up of beneficiaries and their registration, etc.

As many as 81 voluntary organisations were reported to be providing immunisation services through their own static centres. Most immunisation services are provided through hospitals and charitable dispensaries run by agencies like R.K. Mission, Christian Missionaries, or by some charitable trusts. Rotary and other international organisations are also gradually beginning to provide services through their own doctor members.

The IMA is gradually picking up the role of mobilising its members to play an active role in extending immunisation services. A significant contribution has been made in Bihar by IMA where private practitioners have been organised to provide services in different wards in Patna, on fixed days. Many States like Gujarat and Rajasthan distribute vaccines to private practitioners through IMA. The Rotary Club in Patna is helping in enlisting beneficiaries. It has enrolled 70,000 beneficiaries for immunisation. Impact in Bombay works for the disabled, but to prevent disability due to poliomyelitis, it has started taking more interest in the Immunisation Programme. It is helping in demand generation and in identifying sources to provide resources for the programme. There are a very few voluntary agencies which are providing services in the rural areas. Bal Rashmi in Rajasthan is one which has a demarcated area for its operation where its own medical doctors and support health teams have been mobilised to provide immunisation. Ever since the start of Operation White Flood, Dairy Cooperative Societies have been formed in Bihar, Rajasthan and Gujarat. Voluntary organisations like Rural Development, work for the betterment of the members of these societies and extend immunisation services through their own medical set-up.

As said earlier, there are many organisations willing to assist but a dynamic leadership is required to mobilise them. Until now, the role of voluntary agencies has remained confined to the large cities or metropolitan areas. They have been marginally mobilised to help in small towns or rural areas.

District/State administrations by and large, have failed to interact with these organisations in an effective way. Consequently, there are no defined or specific guidelines indicating the manner in which these organisations could assist. This also often leads to duplication or omission of services in certain areas. Their assistance for enumerating and enlisting beneficiaries, identifying and reporting VPD cases and training have not been explored or exploited. In Maharashtra, it was also found that in many voluntary agencies the staff were not adequately trained for immunisation services.



## ROLE OF PRIVATE PRACTITIONERS

Almost all the coverage evaluations carried out in the country over the past few years, including the present one, carried out by the National Institute of Health and Family Welfare as part of its review of the Immunisation Programme, have revealed the increasing role of private practitioners in providing immunisation services to their clients: 10-25% of the beneficiaries contacted revealed private practitioners as one of the main sources of immunization.

Every private practitioner has an informally defined clientele, strongly motivated to purchase his services. For every problem, they fall back upon him. His advice is listened to. He has an inbuilt continuity and consistency in his relationship with his clients and facility for providing services in the event of any adverse reaction. With the general feeling among people that whatever service the Government provides is of poor quality, and with the gradually increasing purchasing power, more and more people are seeking the services of private practitioners and private nursing homes.

Therefore, one of the areas studied in the present review was to find out the role of private practitioners in UIP and their linkage and relationship with the local health administration. Areas looked into were :

- a. Types of vaccination given,
- b. Source of their supply of vaccines,
- c. Availability of any IEC material and immunisation cards,
- d. Maintenance of the cold chain,
- e. Maintenance of records and Relationship with local health administration, etc.

### General Observations

In every State, there is a large number of private medical practitioners. Around one-fourth and one-third of them provide immunisation services. Even registered medical practitioners (RMP) are gradually including immunisation as an important service provided at their clinic. It will not be out of place to say that offering immunisation services adds to the image of the clinic.

Though State Governments have been repeatedly requested to maximise the involvement of private practitioners in UIP, they have failed to mobilise this large force for two reasons:

- i. Private practitioners provide service for fee, inspite of the fact that the vaccine has been supplied free of cost.
- ii. Difficulties in keeping an account of the vaccine supplied to them due to lack of regular reporting by private practitioners.

In 42 units (35 districts and seven NE States) and four metros under review, about 293 private doctors were interviewed. Of the 293 practitioners, 53.2% were



post-graduates and 39.9% were graduates. The remaining 7% who were giving vaccination were registered medical practitioners.

Nearly 40% had been practising for more than 10 years; 31% between five and ten years; and the remaining had been in practice for less than five years. In spite of the fact that nearly 80% of the practitioners provided immunisation services, it was observed that in the seven North-Eastern States, there were very few private practitioners. Most of them were not providing any immunisation services. In Mizoram, a private practitioner opined that the Government is already providing services very efficiently, hence, there is no need for him to provide these services. In Tripura, the private practitioners gave only TT to pregnant women. They purchased their own vaccine. In Arunachal Pradesh, Manipur and Sikkim no practitioner was providing immunisation. In Meghalaya, for the past few months, the Government has been trying to motivate private practitioners to provide immunisation services.

In the State of Goa, the Government as a policy does not supply vaccine to private practitioners. BCG is supplied through IMA. The State Government of J & K as a rule does not encourage private practitioners to render these services. Private chemists and druggists do not store these vaccines, hence they have no source of supply of vaccines.

It was observed that among those who were rendering these services, more than 70-80% of private practitioners provided DPT, OPV and TT. BCG vaccination was provided by a small segment, 18% and that too in the urban set up. It is understandable because BCG is not freely supplied and is generally given by BCG technicians.

Practitioners serving the elite groups of population in the metros and the capitals of the States advocate and use MMR (Measles, Mumps, Rubella) vaccine instead of measles vaccine. Such practitioners were around 10-20%. Similarly, an almost equal number of them gave five doses of polio vaccine.

More than 50-70% of private practitioners purchased the vaccine on their own or asked the client to purchase it. Even those who were receiving vaccine from the Government, for some of their clients, purchased vaccine from the shops. About 10-15% of private practitioners preferred to use single dose measles vaccine purchased from shops which cost about Rs.13-15 and charged their clients about Rs.25 for this. 14% of practitioners obtained vaccine from the Government only.

A majority i.e. 60-70% of private practitioners provided immunisation cards to their clients. A few of the private practitioners had their own cards. About 30-40% used cards provided by pharmaceutical concerns.

Most of the private practitioners displayed schedules of immunisation or posters about immunisation provided by pharmaceutical concerns.



Nearly 35% of private practitioners were not involved in educating their clients about vaccinations. 60-70% of them reported that a major segment of their clientele is already well informed and demand themselves these services. Difficulties were faced only where private practitioners ran their clinics in socio-economically handicapped areas.

Satisfactory records of vaccination were maintained only by 30-40%. By and large, the records were so incomplete that the dropout rates or adverse reactions could not be worked out. They showed less concern about dropouts because they believed that paying clients generally do not default.

Only 24% of the practitioners reported to the concerned officials about immunisation performed by them. Similarly, a quarter of the total number of practitioners reported about vaccine preventable diseases. Only a few private practitioners in the metros and in districts like Warangal (A.P.), Nowgaon (Assam), Goa, Quilon (Kerala), Pune (Maharashtra), etc. reported about vaccine preventable diseases to local officials. 11.9% reported that they are informed about the action taken on their reports. 32.8% denied knowing of any action being taken. The remaining 56% failed to offer any comments.

Meetings with Government officials were very infrequent. Only 22.9% of the practitioners reported that they were invited to meetings. Private practitioners in States like Karnataka, Haryana, Rajasthan, Gujarat and Tamil Nadu were reported to have been invited for meetings sometimes. Visits by Government officials to their clinics were also infrequent; 23.2% of the practitioners had only one or two visits by the officials concerned.

In some of the States, private practitioners offered their services to voluntary organisations and to the Government whenever any special campaigns and drives were launched. Voluntary agencies involved practitioners more often than the Government. 37% of the practitioners were involved by voluntary agencies in special campaigns for immunisation, whereas only 13.8% were involved by Government officials. For instance, in Patna, private practitioners provided free service once a week to run static immunisation sessions in all the wards of the city. Vaccines and manpower supply for these sessions are provided by the Government.

Nearly 30-40% of the private practitioners provided immunisation services to their clients every day, whereas 40-50% provided services on fixed days only. The remaining had no defined policy.

The cold chain maintenance for vaccine quality was found to be the weakest link. Nearly 30-40% of the private practitioners kept the vaccine in their refrigerator at home and brought it in thermos flasks to their clinics. About 50-60% had a refrigerator in their clinic and stored vaccines alongwith other medicines and articles. In some clinics, vaccines were found to be in the door panel of the fridge.



None of the private practitioners had any alternative arrangement to store vaccine in the event of power failure.

Private practitioners were conversant with the need for storing the vaccine in cold temperature but were not fully familiar with the details of maintaining the cold chain.

A number of private practitioners (20-30%) were found to be reusing opened/reconstituted vials. They could not comprehend the idea of discarding the vaccine.

Finally, it will be pertinent to include the following illustrations reported from Karnataka and Bihar.

#### **i. An Excellent Private Medical Practitioner**

It is gratifying to note that one of the private practitioners, Dr. Kantharaj, when interviewed, showed excellent records maintained by him of about 1000 children given immunisation by him in the last 12 years. His maintenance of records was excellent. He had a clear cut concept of the maintenance of the cold chain. It is felt that if such doctors are asked to deliver a talk or demonstrate what they have done in the field of immunisation in one of the IMA meetings, or in other doctors' meetings, it will go a long way in ensuring the effective involvement of private medical practitioners in this programme.

#### **ii. Role of Indian Medical Association (IMA) in Bihar**

The IMA played a vital role in the implementation of the Patna Urban Immunisation drive, which could mobilise vast political, administrative, professional and media support, the success of which led to similar efforts in other urban areas, viz. Gaya, Bhagalpur, Dhanbad, Begusarai, Mokama and Darbhanga. A significant feature of Patna experiment was the successful networking of around 700 private practitioners under the banner of IMA and the creation of 37 permanent immunisation centres at the rate of one each per municipal ward.



## Staff Time Utilization

It is often alleged that ever since the Immunisation Programme has started being implemented, it has been taking away most of the health workers' time, leaving very little time for other activities related to MCH or other components of primary health care. To find the veracity or otherwise of the above referred suspicion, workers at different levels were interviewed with regard to their:

- a. Total work hours per week, and
- b. Time spent per week on immunisation related activities.

An attempt was also made to find out the time spent on various sub-activities related to the programme. A total of 539 staff members of different categories were interviewed. Distribution of different categories of respondents by designation is shown below :

**Table 41**

*Categories of Health Personnel Studied for Time Utilization*

Designation	No.	%
DIO	5	0.9
MO	100	18.6
BEE	14	2.6
PHN	33	6.1
HA(M)	45	8.3
HA(F)	111	20.6
MPW(M)	56	10.44
MPW(F)	175	32.5
<b>TOTAL</b>	<b>539</b>	<b>100.0</b>

Of the total respondents, 100 (18.6%) were medical officers, 111 (20.6%) were HAs(F) and 32.5% (175) were MPWs(F). Since the above referred categories of functionaries are key persons, contributing most of their time to the MCH programme as compared to others, the time given by these three categories of personnel is examined in more detail.



## Total Work Hours per Week

Nearly 83.9% of all categories worked for 40 hours a week. Only 15.6% worked for more than 40 hours and a fraction of 5.8%, worked more than 49 hours per week. The details are given below:

**Table 42**

### *Distribution of Health Personnel by Total Hours of Work per Week*

Designation	40 Hours	41-48	49+	No response
DIO	5 (100%)	-	-	-
MO	81 (81%)	10 (10)	9 (9)	-
BEE	13 (92.1)	1 (7.1)	-	-
PHN	26 (78.8)	3 (9.1)	4 (12.1)	-
HA(M)	41 (91.5)	2 (4.4)	1 (2.2)	1
HA(F)	97 (87.4)	7 (6.3)	7 (6.3)	-
MPW(M)	42 (75%)	9 (16.1)	3 (5.4)	2
MPW(F)	147 (84.7)	20 (11)	7 (4)	1
<b>TOTAL</b>	<b>452</b>	<b>52</b>	<b>31</b>	<b>4</b>
<b>Per cent</b>	<b>(83.9)</b>	<b>9.6</b>	<b>5.8</b>	<b>0.7</b>

## Time Spent on Immunisation Activities

Out of the total work hours, nearly 58.3% of all categories of staff spent 12-24 hours per week on activities related to immunisation, thus, spending a third to half of their time on this activity. About 40% spent less than 12 hours. Even amongst these, 14.1% spent even less than six hours i.e. less than a fifth of the total time. The details of time spent by different categories of staff on immunisation related activities are shown below:

**Table 43**

### *Distribution of Health Personnel by Time Given for Immunisation Work*

Designation	Time less than 6 hours	7-12 hours	12-24 hours	No response	Total
DIO	1		4	-	5
MO	24(24)	33(33)	42(42)	1	100
BEE	1	3	10	-	14
PHN	2	4	27	-	33
HA(M)	5	11	28	1	45
HA(F)	9(8.1)	21(18.9)	81(73.5)	-	111
MPW(M)	9	20	25	2	56
MPW(F)	25(14.3)	52(29.5)	97(55.4)	1	175
<b>TOTAL</b>	<b>76</b>	<b>144</b>	<b>314</b>	<b>5</b>	<b>539</b>
	<b>(14.1)</b>	<b>(26.7)</b>	<b>(58.3)</b>	<b>(0.9)</b>	<b>(100)</b>



Amongst medical officers, nearly 56% gave less than 12 hours of their total time for immunisation. On the other hand, only 27% HAs(F) spent less than 12 hours, whereas 73% of them spent more than 12-24 hours of their total time on immunisation. Amongst MPWs(F), nearly half of them spent less than 12 hours of their time on immunisation, whereas the other half spent more than 12-24 hours. Among the five DIOs who responded, four used to spend 12-24 hours per week on immunisation which indicated their involvement in other activities also.

### **Time Spent for Individual Sub-activities of Immunisation Programme**

It would have been appropriate to work out the proportion of time given for each activity, but since the workers found it difficult to give the exact break up, the approximate time spent by them on the following components of programme activities had been recorded:

1. Immunisation services
2. Cold chain caring for refrigerator, obtaining vaccine, etc.
3. Sterilization/preparing syringes, needles, etc.
4. Enumeration/recording/reports for immunisation.
5. Community meetings/organisation for immunisation.
6. Travel to immunisation sessions.
7. Supervision, meetings.
8. Training for immunisation.

About 103 respondents (19.1%) informed that they were not directly involved in giving immunisation, hence, did not spend any time on this aspect. 121 workers (22.40%) spent 1-3 hours for immunisation, whereas 58.8% spent more than four hours on this activity.

The time spent per week on different components of immunisation by medical officers is shown in Table 44.

Varying proportions of medical officers denied contribution of any kind in different components. However, this was maximum (47%) in the case of sterilisation of equipment. Only 8% stated that they did not spend any time on supervision. A majority of the doctors who contributed to different activities, spent 1-3 hours. Three main activities on which a relatively large number of MOs spent more than four hours were community organisation (19%), supervision and travel to immunisation session (25%) each. Interestingly, nearly one-third of the MOs had not contributed towards training in immunisation.



Table 44

*Distribution of Medical Officers by Time Given per Week for Different Components of Immunisation Services*

Immunisation Related Activities	No. of Medical Officer reporting Time			Total number
	Nil	1 to 3 hrs.	4 and more	
Cold chain caring for refrigerator, obtaining vaccine, etc.	24	72	4	100
Sterilization/preparing syringes, needles, etc.	47	47	6	-
Enumeration/Recording/ Reports - all for EPI	23	63	14	-
Community meetings/organisation for EPI	22	59	19	-
Travel to immunisation sessions	22	53	25	-
Supervision, meetings	8	67	25	-
Training for Immunisation	33	61	6	-

In the case of HAs(F) the details are shown below:

Table 45

*Distribution of HA(F) by Time Given per Week for Different Components of Immunisation Sessions*

Immunisation Related Activities	No. of HA(F) Reporting Time			Total
	Nil	1 to 3 hrs.	4 and more	
Cold chain caring for refrigerator, obtaining vaccine, etc.	15	79	17	111
Sterilization/preparing syringes, needles, etc.	13	77	21	-
Enumeration/Recording/ Reports - all for EPI	8	71	32	-
Community meetings/organisation for EPI	11	60	40	-
Travel to immunisation sessions	13	58	40	-
Supervision, meetings	10	67	34	-
Training for Immunisation	52	51	8	-





As compared to MOs, less number/proportion of HA(F) reported nil contribution to any component of immunisation activities. While a majority of them spent 1-3 hours on average on different sub-activities, a relatively higher proportion of HAs(F) had spent time more than four hours in different activities as compared to MOs, e.g. 40 (36%) each on travel time and community organisation and 34 (30.6%) on supervision. In the case of HAs (F), 52 (nearly 45.94%) did not give any time for training, whereas almost 90% of them spent 1-6 hours on the remaining activities.

Details regarding the time spent by MPWs(F) on different sub-activities is shown below:

**Table 46**

*Distribution of MPW(F) by Time given per Week for Different Components of Immunisation Services*

Immunisation Related Activities	No. of MPW(F) reported Time			Total
	Nil	1 to 3 hrs.	4 and more	
Cold chain caring for refrigerator, obtaining vaccine, etc.	60	86	29	175
Sterilization/preparing syringes, needles, etc.	29	120	26	-
Enumeration/Recording/ Reports - all for EPI	21	104	50	-
Community meetings/organisation for EPI	29	91	55	-
Travel to immunisation sessions	47	88	40	-
Supervision, meetings	77	76	22	-
Training for Immunisation	116	47	12	-

Amongst the MPWs, fewer of them spent their time on cold chain maintenance, supervision and training. 60 (33.1%) of ANMs did not spend any time on cold chain maintenance, 77 (45.7%) and 16 (62.85%) spent no time on supervision and training respectively. Such a large proportion of workers not giving any time is understandable because these areas of activities generally do not fall in their list of functions.

The fact that a majority of workers spent less than 30-50% of their time on immunisation proves that immunisation activities have not hijacked time from other programmes.

## IMPACT OF IMMUNISATION ON OTHER ACTIVITIES

The Immunisation Programme is a programme through which there are opportunities for greater contact between health functionaries and the community. It is



logical to presume that it will result in better rapport and credibility with the community, and increased acceptance of the services under other components of the family welfare programme.

During the National Review of the Immunisation Programme, an effort was also made to assess the impact of the Immunisation Programme on the morale of workers, the total functioning of the workers including performance in other health related programmes and the relationship of the workers with the community.

Health personnel at different levels were asked about their general impression in this regard. By and large, the conclusions drawn were subjective and impressionistic. It was noted that in a majority of the States like Andhra Pradesh, Bihar, Goa, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra and Uttar Pradesh, the worker's morale, functioning and relationship with the community had improved. Particularly, in the States of Kerala, Karnataka, Assam, Orissa, Tamil Nadu and West Bengal, it was stated that their functions have been boosted or geared up. In Andhra Pradesh, Kerala and Karnataka, despite the advantage in boosting up achievements, and the image/credibility of health staff, there was a general feeling that the workload had become much too heavy as a result of UIP.

Interestingly, though, based on subjective data, Rajasthan was the only State where UIP was reported to have adversely affected the total functioning and morale of health functionaries because of lack of incentives for the extra workload. This was specially reported from Bharatpur district.

The States of Punjab, as well as Jammu and Kashmir had no particular comments to make on this subject. By and large, MCH activities, including antenatal services and family planning activities appeared to have benefited in most States as a result of the implementation of UIP. Among the North-Eastern States also, the impact had been reasonably good. However, in the State of Meghalaya, though there was improvement in the family welfare programme, other national programmes were stated to have been adversely affected because of UIP.



## Cost Analysis of UIP

Keeping in view the requirements of the Central Government and donor agencies, a study was undertaken with the aim of financial analysis of the programme providing estimates of total cost of the programme for an administrative area of implementation and the cost of sustaining the programme to the local and State Governments.

The specific objectives of the study were:

1. to identify the cost composition of UIP at district level and below,
2. to estimate total cost of the programme and the cost composition at district level and below,
3. to estimate unit cost of services provided under UIP, and
4. to estimate cost of sustaining the programme for future years.

The study was conducted in two districts namely, Nanded in Maharashtra and West Nimar in Madhya Pradesh. A random sample from each category of institution within each district was drawn to study the cost of running UIP at the institutional level.

The study required data on three different aspects of Immunisation Programme viz.

- i. the data about various kinds of inputs available and utilized,
- ii. quantum of programme output in terms of services provided by various health institutions in rural and urban areas, and
- iii. data on completed immunisations.

For this purpose various methods of data collection were adopted.

- i. *Interviews and discussions* with the officials at State, district and institutional level.
- ii. *Study of secondary records* for details about central budget and State budget as well as expenditure for the UIP from State HQs.
- iii. *Delphi technique and interviews* with the functionaries at various levels were conducted to estimate staff time allocation to the activities related to immunisation.



In addition to the above three approaches the detailed information collected by the State team constituted for coverage evaluation and review was also utilized and analysed.

In the present study costs have been simply defined as the value of resources used and the programme cost has been estimated as a sum of the monetary value of each resource category utilized for the programme.

For each resource, monetary value was estimated and allocated to the UIP depending on whether it is direct cost component or indirect cost component.

The full cost of the programme has been estimated in two components as capital cost and recurring cost. The capital cost has been estimated by annualising the value of the capital input.

The recurring cost of the programme has been estimated by adding up the monetary value of all inputs consumed for the provision of services and undertaking other activities related to UIP.

For information on budget provided for UIP and expenditure incurred, the details in these regard were collected from the two districts under study for the year 1988-89.

## COST OF UIP AT DISTRICT LEVEL

In order to estimate the cost of Universal Immunisation Programme at district level for one year period (1988-89) and to project the cost for future years, it was thought essential to identify the cost components i.e direct/incremental cost and indirect/obligatory cost with subdivision into capital and recurring costs and cost composition at district level as well as at institutional level.

The total cost of UIP at district level and cost composition in two districts (1988-89) are shown below:

**Table 47**

*Total Cost of UIP at District Level and Cost Composition in Two Districts (1988-89)*

Item of Expenditure	West Nimar			Nanded		
	Obligatory/ Indirect cost	Incremental/ Direct cost	Total cost	Obligatory/ Indirect cost	Incremental/ Direct cost	Total cost
Capital*	62,337 (1.4%)	86,016 (8.7%)	1,48,353 (2.7%)	2,07,525 (1.8%)	1,65,848 (14.3%)	3,73,373 (2.9%)
Recurring	43,86,048 (98.6%)	9,03,847 (91.3%)	52,89,895 (97.3%)	113,06,168 (98.2%)	9,94,528 (85.7%)	123,00,696 (97.1%)
<b>Total</b>	<b>44,48,385</b> <b>(81.8%)</b>	<b>9,89,853</b> <b>(18.2%)</b>	<b>54,38,248</b> <b>(100.0%)</b>	<b>115,13,693</b> <b>(90.8%)</b>	<b>11,60,326</b> <b>(9.2%)</b>	<b>126,74,069</b>

\* : Capital cost includes only the annualised cost per year for the investment made and not the actual investment for equipments, vehicles, etc.



It showed that the total cost of operating UIP at district level was Rs. 126.74 lakhs for district Nanded and Rs. 54.38 lakhs for district West Nimar. It is seen that the total cost for West Nimar was less than half compared to district Nanded. This can be explained that UIP was implemented one year prior in district Nanded and more number of health infrastructure facilities and health functionaries available within the district were involved in immunisation activities. This resulted in utilisation of more resources of various types leading to higher cost.

The composition of the total cost in capital and recurring cost was approximately in the ratio 1:33 for both Nanded and West Nimar. Thus, the recurring cost was the major component contributing to 97.0 per cent of the total cost in both the districts.

### **COST COMPOSITION OF UIP AT DISTRICT LEVEL**

Matrix of cost components into direct and indirect cost for both the districts shows that the major element of indirect cost was the salary of health personnel working in various institutions involved in immunisation activities and it accounted for nearly 98 per cent of total indirect cost. The remaining indirect cost was incurred on vehicles, their running cost and maintenance cost.

In regard to the direct cost of the programme, the percentage contribution was different and it was observed that 8.7 per cent of total direct cost was incurred on capital items in West Nimar whereas it was 14.3 per cent in Nanded. Among the direct recurring expenditure items, major share was for vaccines and immunisation supplies such as needles, syringes and immunisation cards. These elements accounted for 81.9 per cent of direct recurring expenditure in West Nimar district and 62.5 per cent in Nanded district. The salary expenditure as percentage of direct recurring cost was only 6.5 per cent and 19.8 per cent in West Nimar and Nanded respectively. The production and supply of health education material such as pamphlets and posters accounted for 4 to 5 per cent of total direct recurring expenditure whereas operating cost for vehicles was about 3 to 4 per cent of total direct cost.

### **UNIT COST OF SERVICES FOR IMMUNISATION AT DISTRICT LEVEL**

This was estimated for both the districts by dividing the total cost of the programme by the output of services for the same period 1988-89.

The estimates derived for the unit cost of output of services in UIP indicated that the average cost per dose of immunisation to child or pregnant woman was about Rs. 10 to 11 in West Nimar and Rs. 26 to 27 in Nanded. The average incremental cost per immunisation was Rs. 1.99 in West Nimar and Rs. 2.42 in Nanded.

The cost per fully immunised child for six VPDs was estimated by using the denominator in terms of number of fully immunised children. For this, the norm



provided by WHO, i.e. 90 per cent of children immunised for measles to be considered as fully immunised was utilised. From the estimates thus derived it was observed that the average cost per fully immunised child was Rs.96.97 in West Nimar and Rs. 270.25 in Nanded of which 20 per cent and 9.2 per cent respectively were the incremental costs in the two districts.

## **COST OF UIP AT INSTITUTIONAL LEVEL**

To assess the management of these resources and their utilisation for immunisation services at various levels in the district health organisation and to identify the levels at which the cost incurred on immunisation is high, the operating cost of these services was estimated for each category of health unit for the year 1988-89. In addition, the variation in health units of the same category were also explored for cost profile and unit costs for immunisation services for two districts under study.

## **TOTAL COST**

It was found that in urban area the average expenditure for immunisation services was Rs.2,08,370 for the three hospitals and ICDS facilities available in Nanded district and it was much higher than the average expenditure of Rs. 47,017 for two hospitals in West Nimar. The factors contributing to the variation were availability and utilisation of infrastructural, equipment and manpower facilities at institutional level as well as the output of services provided.

In rural areas, the average cost incurred for provision of immunisation services at CHC and PHC level was about Rs. 1,64,168 in West Nimar and Rs. 1,96,172 in Nanded. The Mini-PHCs and civil dispensaries functioning in West Nimar spent approximately same amount of Rs. 28,189 and Rs. 26,595 respectively for immunisation activities. But in district Nanded the average expenditure incurred by civil dispensary (Rs. 74,515) was nearly three times that in West Nimar. At the lowest peripheral unit, namely subcentre, the average expenditure on immunisation was Rs. 10,375 in West Nimar and Rs. 23,872 in Nanded. It is to point out that the range of total expenditure was narrower for all categories of health units studied in West Nimar district compared to those studied in Nanded district.

It was also seen that the percentage of incremental cost to the total cost of the programme was comparatively more in higher level health institutions in West Nimar.

## **UNIT COST**

To explore the variation in efficiency with the level of health units, the unit cost estimates were compared among different categories of health units within two districts as well as between the two districts. The average cost per immunisation



provided by hospitals, CHC and PHC was observed to be around Rs.5 in West Nimar district and it increased to more than Rs.10 for lower level health units with wide variations between health units of the same category in that district. On the other hand in Nanded district, the average unit cost of immunisation services did not show any consistency but unit costs varied with more or less same range in all categories of health units except civil dispensaries where the variation was comparatively less. The similar situation was observed for average cost per fully immunised child but higher range of variation because of poor performance in measles immunisation in some units.

In spite of the variation in average cost per immunisation within and between various categories of health units in two districts, the degree of variation in average incremental cost per unit of service provided by these health units was much less.

## **COST COMPOSITION**

In general, recurring cost, mainly the manpower salary and other benefits component, made up a larger percentage of greater spending in all categories of health institutions in both the districts. Its average contribution in urban units varied from 63 to 80 per cent and 76 to 96 per cent in West Nimar and Nanded respectively. In rural areas this component accounted for nearly same percentage of total cost upto CHC and PHC level but it increased to more than 85 per cent in lower health units. Conversely, vaccine and immunisation supplies for lower level health units represented a smaller proportion of about 8 per cent of total cost compared to urban health units and CHCs, PHCs where it was more than 20 per cent.

## **COST OF SUSTAINING UIP AT DISTRICT LEVEL**

The annual estimates of cost for sustaining the programme at district level with the proposed norms of government of India for input facilities, services and activities at various levels within the districts under study were worked out.

## **TOTAL COST**

Utilising the norms and assuming that the pattern of utilisation of the resources remain same for future years as was observed during 1988-89, the total incremental cost has been estimated for the two districts under study. Thus, it was found that the total incremental cost per year for UIP in district West Nimar of M.P. would be Rs. 12,68,600 and in district Nanded of Maharashtra it would be Rs. 13,76,700. While estimating the cost, fixed amount sanctioned to district by Government of India for specific activity of the programme was assumed to have been fully utilized for the programme. e.g. contingency money of Rs.2000 per PHC per year or POL of Rs.9500 per year per diesel run jeep or van provided under the programme, etc.



## COST COMPOSITION

As expected, the vaccines, immunisation supplies and annualised capital cost of cold chain and immunisation equipments account for more than 65 per cent of the incremental cost of which more than 50 per cent is for vaccines. The annualised cost of vehicles and their operation and maintenance account for nearly 5 per cent of the total direct cost of the district in both States. Though the Government of India has provided funds for other activities such as surveys, meetings and training of new entrants in a year it constitutes hardly 2.2 per cent of direct cost.

The major component of vaccine cost was estimated on the basis of quantum of different vaccines required to immunize the expected number of infants and pregnant women in a year and then this quantity was expanded to account for the quantities lost during transportation or due to cold chain failure etc., using the rate 25 per cent for DPT/TT/ OPV and 50 per cent for BCG/Measles. Thus, the major cost for sustaining the programme needs to be incurred on vaccines, immunisation supplies and salaries of the staff appointed under UIP, which are principal variable costs of importance for overall lower unit costs and higher manpower productivity.

## UNIT COST

For district West Nimar in M.P. the incremental cost per immunisation that government has to incur will be Rs.2.25 whereas it will be Rs.3.01 for district Nanded in Maharashtra. This cost of immunisation was nearly 50 per cent more for a child compared to a pregnant woman. The incremental cost per fully immunized child is estimated to be Rs.22.00 in West Nimar and Rs.28.81 in Nanded.

The incremental cost estimated with proposed health facilities, equipment and staff when compared with the incremental cost incurred during 1988-89 by two districts under study showed that there is an estimated increase of about 28.2 per cent in West Nimar and 18.6 per cent in Nanded. This indicates that there is a need to provide additional inputs if these districts are to sustain the programme and achieve the objectives of 85 per cent immunisation coverage for children and 100 per cent coverage for pregnant women.



## Problems and Constraints

Despite the fact that the infrastructure to provide immunization services to infants and women has multiplied manifold, the cold chain system has been greatly strengthened to provide potent vaccines and the progress of the Immunisation Programme is constantly monitored at both national and State levels, achievement of the target of protecting 100% of pregnant women with TT and 85% of infants with vaccines against six VPDs by 1990 remains a distant dream. Ever since the inception of UIP, various coverage evaluation surveys including the present review of the Immunisation Programme carried out by NIHFV, bear testimony to the glaring gap between the goals aspired for and the targets reached. This also finds support from the annual performance reports for different groups of vaccines published by the Government of India.

In spite of the fact that the National Government is fully committed to the goal of providing immunisation to all the target population, within the stipulated time-frame, it appears that the urgency of the programme is not understood at all levels of the health system. Consequently, a sense of commitment is lacking. Various problems and constraints come in the way of the effective implementation of the programme and, consequently, interfere with its success.

A few of the major problems identified during the review in different States are listed below:

### 1. Policies

Even though at the Central Government level, immunisation policies in terms of universal coverage and goals to be achieved by 2000 AD have been clearly spelt out, there seemed to be a gap in the extent of acceptance of the above by the States which happen to be the actual implementing agencies. The programme was conceived at the central level and strategies and targets were worked out without adequate effort to take the States into confidence and also without adequate preparatory



work. This probably led to the gap of a period of over one year between initiation of the programme and its actual operationalisation.

- A major deficiency in terms of lack of clear cut policies regarding implementation of immunization in the urban areas was observed. These problems related to joint planning, resource allocation, demarcation of areas/population responsibility between State health administration, urban local self-governments viz. Municipalities/Corporations, as well as Central Government agencies.
- Under UIP, the creation of posts of DIOs has been recommended for enabling the districts to implement the programme more effectively. However, clear policy guidelines regarding their specific role and status vis a-vis other district officials are lacking which has created various implementation problems.
- Even though under the MPW scheme, in many States, the areas/zones in the districts have been allotted to district officials on a geographical basis for supervision of all health programmes, the creation of the post of DIO brings in the concept of verticality in the implementation of the Immunization Programme. There is need to clarify this and preferably the integrated approach of implementing health programmes at the district level should be clearly brought out in the policy guidelines.
- Regarding prospects of achieving targets set for 1990, it would be pertinent to seek answers as to how the districts covered under UIP in various years in a phased manner could reach the same coverage levels by 1990 because districts included in the earlier period can be assumed to have the obvious advantage over those included later in terms of various resource inputs.
- Involvement of non-governmental agencies, public sector undertakings and private practitioners has been encouraged under the programme. However, clear policies specifying the nature of the relationship between the State health administration and such agencies are lacking which leads to inadequate involvement of such agencies in the programme and lack of coordination between the State administration and such agencies.

2. The relationship between the Mission on Immunisation and DGHS at the Central level in the total Immunisation Programme is unclear, particularly since all districts will be covered under UIP by 1989-90. Problems are likely to arise in relation to the following:

- i. Coverage and monitoring of booster doses for DPT, and polio vaccines.
- ii. Coverage with complete immunisation for those children who could not be protected under one year of age.



iii Immunisation of children of older age groups for DT, TT, etc.

3. With reference to the issue of translating well formulated policies regarding the programme into actual operational guidelines and programme procedures through a detailed Action Plan, there seemed to be inadequacies at different levels. The Action Plans at the Centre, State and district levels wherever they existed, mostly comprised listing of certain activities and, at the most, fixing of responsibilities to specific personnel in a few. However, specific details indicating the time-frame with active involvement of the personnel concerned were found to be lacking.

#### 4. **Development of Infrastructure**

In consonance with the goals of the national health policy, the Governments in different States have expanded the infrastructure by creating additional PHCs and subcentres. It was hoped that with the expansion of health facilities, accessibility would increase, the area of coverage would be reduced and better services would be provided, so that the unreached would be reached with a package of services. In spite of this large scale expansion, most of the new facilities in many States have not yet been operationalised. They lack adequate staff, cold chain facilities, specifically redefined job responsibilities and demarcated areas. Consequently, UIP has not benefited to the extent that one had envisaged because the burden is still borne by the block PHC. For such block PHCs, expansion of new facilities has neither reduced the area of coverage nor the population to be served.

#### 5. **Issues Related to Health Manpower**

##### 5.1 **Inadequacy of Health Staff**

- UIP being a high priority programme requiring a tremendous initial push, needed a set of additional officials to look after it exclusively. Similarly, maintenance of the cold chain system required specially trained officers. For this reason, it was envisaged that every State would provide a State EPI officer, cold chain officer, and technical assistant at the State headquarters. Similarly, the district administration was to be strengthened by providing a DIO, refrigerator mechanic, statistical assistant, typist, driver etc. National Government agreed to bear 100% of the expenditure for the above mentioned positions.

In most of the States, at the State level, senior programme officers looking after MCH and FW have been assigned the added responsibility of looking after EPI. Consequently, these officers, already wedded to



their own programmes, find it hard to give full attention to the extent the Immunisation Programme requires. They find themselves over-burdened and without adequate support they are not able to do justice to either of their responsibilities.

- In addition, the posts of cold chain officer, DIO, refrigerator mechanics, statistical assistant, and drivers were found to be vacant in many States. In a couple of States, these positions had not yet been created.
- Similarly, wherever DIOs have been posted, most of them do not have adequate administrative or financial powers. They have to depend for everything on the CMO. Therefore, they find themselves ineffective or not able to get the desired results. Moreover, in the absence of administrative authority the DIOs felt uneasy about the relationship with MOs of the PHCs. Also, the communication channel between the State level and district level as well as between the district level and the PHC, in terms of this programme was not directly involving the DIO, which made him feel inadequate and ineffective in implementing the programme. The absence of financial powers interfered with the DIO's abilities in sorting out and initiating corrective actions for problems of vehicle/equipment maintenance, etc.
- In some States, paediatricians working as the in-charge of a ward in a hospital have been assigned the responsibility of DIOs. Consequently, with a load of clinical work, they are not able to do justice to the Immunisation Programme.
- Similarly, a large number of posts of Medical Officers, Health Assistants (F), MPWs(F) are lying vacant. In some States, the vacancies are more than 30%.

5.2 Apart from reasons of inadequate physical facilities, a number of medical officers and paramedicals at the levels of both PHC and subcentre do not stay at their HQ, but commute every day from their residence outside the area. Naturally, this means a long time spent in travelling, allowing less opportunities to participate in activities for ensuring the people's participation and does not allow involvement with a full sense of commitment.

5.3 Frequent transfers and large scale turnovers, particularly of trained staff, pose another serious problem in the successful implementation of the programme.

5.4 Apathy, lack of commitment, accusation of the higher ups in the hierarchy, were the commonly found traits in workers at all levels and of all denominations. A peculiar kind of sense of frustration is percep-



tible, gradually leading to the culture of no work. Some of the reasons for such attitudes as enumerated by the peripheral health workers were

- Large area to cover, hence difficult to reach all the villages.
- Over burdened with many activities particularly, achieving family planning targets.
- No timely payment of salaries, TA and DA.
- No incentives and awards for good work.
- Sense of insecurity and fear of annoying the village leadership.
- No avenues for future promotion.

Middle level Managers like the DIO/MO PHC, perceived the following difficulties:

- Growing indiscipline amongst peripheral workers either due to back up of political clout or union support
- Inadequate staff
- Lack of mobility
- Extra work-load
- Helplessness of higher ups in sorting out even minor problems
- Too many programmes with too many supervisors
- Interpersonal conflicts amongst medical officers and other staff.

## **6. Physical Facilities**

- In most of the districts, the DIOs do not have adequate accommodation for their office and staff.
- In a large number of subcentres, the accommodation for MPWs(F) is not available.
- In some places, the subcentres have been constructed outside the village - without any kind of security.
- Quite a large number of subcentres are being run in rented buildings with inadequate space, and at the mercy of the house owner.
- Wherever subcentre buildings exist, many of them are in dilapidated condition.

Consequent to the above facts, a large number of subcentre staff do not stay at the HQs and commute every day from their place of residence outside area to the place of work. The distance may range between 5-30 km.

## **7. Problems Related to Area/Population Distribution**

- 7.1 Difficult terrain, low density of population, large area to cover to reach the target population, lack of communication requiring travel mostly on foot, sometime taking more than 48 hours to reach the outreach session, fewer months in a year available for work either due to monsoons,



snowfall, landslides, floods, etc. pose serious problems in reaching the target population.

7.2 Similarly, people residing in deserts, tribal belts, with floating and migrating population, pose challenging situations.

7.3 A village having a population of about 3000 may be considered a big village and within easy reach, yet in some States, the population may be found scattered in 10-20 hamlets spread out over a radius of 1-5 miles. Situations like these are not considered while allocating the area of coverage which is generally done only on the basis of population.

## **8. Utilisation of Other Facilities**

- A large number of health facilities, either Government e.g. CGHS, ESI, public sector, private or voluntary agencies have not been harnessed to provide immunisation services.
- The role of health facilities of the Indian System of Medicine (ISM) has not been identified in UIP and, hence, not been involved in immunisation services or in reporting of VPDs.

## **9. Support Manpower**

HGs and AWWs were to play a key role as agent for change and assist in providing services. In pursuance of the Government of India's decision that only a female worker may be employed as VHGM, the institution of VHGM has become more or less non-operative in some States.

## **10. Training**

Informed providers and recipients are two essential elements for the successful implementation of a programme. A well organised training programme tailored to the needs of the programme, with an in-built mechanism to motivate for self learning, supported by appropriate training/learning modules, is one of the important tools for development of human resources. Some problems encountered in the area of training were as follows:

- In training provided to different categories of workers, the component related to IEC/demand generation is missing.
- Middle level managers and PHC doctors have to play the role of trainers. Training imparted to them at national/State level does not prepare them as trainers.
- Training requires a team of trainers. This concept has not been appreciated and no provision exists to train teams of trainers.
- Trainees coming from different States working in different organizational environments are anxious to get many of their problems sorted



out. However, trainers, at the national level find themselves inadequate to address their problems.

- Middle level managers with a lot of administrative responsibilities find no time for organising and conducting training programme satisfactorily.
- BEEs are not involved in training in many States.
- There is backlog in training of personnel at all levels (district, PHC, HA/MPW).
- Assessment of workers at different levels revealed inadequacy of knowledge and skills amongst workers which may be due to inadequacy of training or lack of updating of knowledge through continuing education.

## **11. Supplies**

### **11.1 Vaccine Supplies**

- Vaccine supplies are regulated at the national level by working out the targets, the doses required and the balance in stock, and are sent directly to the State HQs by the manufacturing units or MSD on a quarterly basis. Since no accounting is done for actual vaccine utilization and vaccine stock at different levels in the State, some States have reported stocks of vaccine for more than a year and find it difficult to store the additional stock received.
- Improper indenting system from the PHC to the district results in some PHCs having more than the required vaccine, whereas others have a shortage.
- Supply of poliomyelitis and BCG vaccines broke down and resulted in short or no supply for small periods over the past few years.

### **11.2 Cold Chain Supplies**

- Cold chain equipment/facilities, including day carriers and ice packs were reported to be in short supply, particularly in newly created health facilities.
- Cold chain equipment had not been supplied to medical colleges and other urban health facilities.
- Delay in installation of walk-in-coolers and ILRs or in their repair poses serious problems. In Maharashtra, even Voltas were finding it difficult to repair a walk-in-cooler for want of spare parts.
- Only ILRs have been supplied without the back-up of deep freezers or refrigerators at a large number of PHCs. Consequently, difficulty in



freezing ice packs was common.

- In many States, voltage stabilisers were in short supply. Further, in some States, despite availability of voltage stabilizers, they were not of appropriate quality to cope with the high degree of voltage fluctuations in the electric supply.
- Many States reported non-receipt of refrigerator repair kits.
- Even though regular monitoring of the temperature of refrigerators was an essential requirement of the programme, supply of dial thermometers to achieve this was inadequate in many States.

### **11.3 Other Supplies**

- Kerosene stoves, stabilisers, syringes, needles, etc. have been reported to be in short supply by many States. Consumable articles like syringes, etc. are not replenished.
- Most of the workers reported short supply of stationery and printed report forms.
- Some States/districts have failed to distribute the material to the PHICs though the same have been received in adequate quantity.

## **12. Cold Chain Maintenance**

- During transit, many a time either due to delay/cancellation of flights or delay in receipt of information about the despatch of vaccine, a number of days elapse between the date of despatch and the actual receipt of vaccine by the consignee. Neither the holding airports during transit, nor airports at the consignees' end have cold storage facility. Until the vaccine is claimed, it lies unprotected, sometimes for days together, exposed to the sun and the vagaries of the weather. Such a situation raises serious questions about the quality of the vaccine received. Further, in the absence of any suitable cold chain monitor, it is very difficult to ascertain the quality of the vaccine. Cold chain colour monitors have been found inadequate for detecting breakdowns in maintenance of effective temperature and ensuring the potency of the vaccine. At many places, the vaccine was found stored at temperature more than 12°-18°C.
- Though the temperature is expected to be monitored twice every day, during gazetted holidays, the temperature is not monitored in many places.
- Breakdown in electric power or low voltage is another serious problem for maintaining the cold chain.
- Breakdown in the cold chain system between transit of vaccine from the



PHC to the subcentre/outreach was commonly observed in every district of every State. Instead of carrying the vaccine in vaccine carriers, the peripheral staff prefer to carry it in thermocole boxes which are lighter in weight and easy to carry. But they cannot hold ice for a long time and it melts. Also except for a few summer months, ice is not available during the rest of the months of the year in most States. In most places, the vaccine is brought to the site one day earlier. Wherever it is brought in vaccine carriers packed properly with ice packs, the vaccine can be held safely for 24 hours or more but carrying vaccine in thermocole boxes makes the vaccine unworthy of use after a certain time. Reuse of the vaccine from half-used vials was observed. Such a practice was also found among a few private practitioners.

### **13. Monitoring Quality of Cold Chain Maintenance**

To ensure that beneficiaries are vaccinated with potent vaccine, protected by a proper cold chain system, it has been envisaged to lift samples of oral polio vaccines from different sites in the districts and States and get them tested regularly for potency. However, problems observed in this regard included the following:

- The number of samples lifted from most of the States was grossly inadequate.
- In the absence of laboratory facilities within the State, it was too cumbersome to send vaccines through couriers from every district to the allocated laboratory.
- There was a significant time lag between the despatch of the sample and receipt of the result.
- After collection of the sample, the balance vaccine was generally used without waiting for the result. There is no mechanism to reach those children who have already been immunised with the batch of vaccine which was later found to be unsatisfactory.
- Since there are very few laboratories in the country for carrying out the potency test, the existing ones are not able to cope with the workload.
- 'T' group of vaccines are believed to be hardy in nature, hence, many a time, for want of adequate storage facilities, they are stored at room temperature. In the absence of any policy for testing the quality of such vaccines, it is difficult to assess how many might have been vaccinated with vaccine of questionable quality.

### **14. Budget**

- Generally, the budget from the Centre is released by the end of July every year.



- By the time it is released by the States, more than three-fourth of the financial year is over. Consequently, sanctions at the district are received at the fag end of the financial year.
- Many States were not able to utilize the total grants released by the Centre. Failure to recruit staff was one of the main reasons for this.
- Some States fail to submit accounts on time and, hence, there is delay in release of funds from the Centre.
- Some State or district administrations failed to provide POL funds or contingency amounts to the PHCs. It had been decided to provide Rs. 2,000 annually as contingency amount to the PHCs. However, in many States, it does not reach the PHCs.
- In some States, funds for training have not been released from the Centre.

## **15. Information, Education and Communication**

IEC cells have been created at each State HQ/District HQ under the family welfare programme. Developing strategies for IEC in the Immunisation Programme is one of the important activities of these cells. The following bottlenecks were observed:

- Inadequate number of positions of IEC personnel at all levels.
- Lack of trained manpower.
- Lack of transport facilities.
- Lack of funds - resulting in inability to produce or procure IEC material in adequate quantity so that it may reach every nook and corner of the State.
- IEC staff is not fully conversant with UIP, hence, find themselves inadequate to produce material suited for the programme.
- Lack of coordination between the State Health Education Bureau (SHEB) and the IEC cell has led the two to be working independently of each other.
- Inadequate supply of hardware and educational material related to IEC.
- In many States, 16 mm. projectors and public address systems are not working and have been put into disuse. Replacement has not been made.
- No trained operator to run the 16 mm. projectors.
- Failure to establish linkage with the literacy mission.

## **16. Managerial Process**

### **16.1 Planning and Operational Strategies**

- While the Central Government has issued targets and resources to the States for implementation of the Immunisation Programme, the States



are expected to prepare detailed Action Plans indicating activities, persons responsible for implementing those activities, place, time for specific activities, etc., particularly considering the specific geographic, climatic or demographic features of the States. However, some States failed to do this effectively.

- In some States, elaborate Action Plans have been developed at the State and even at district level but not with adequate involvement of all the concerned officials. Consequently, there was no clear understanding of its implications by the time it reached the operational level of PHC for its implementation.
- Most of the States have planned to provide vaccination through static centres at various health facilities, or through the outreach. It is also coupled with the special campaign approach strategy. However, there is need for special operational strategies to reach the floating and migrant population. In many States, large sections of the population migrate on account of floods and drought and remain unreached by health functionaries.
- In some States, labour migrate temporarily to work in other States. Generally, in the absence of any specific strategy, this population remains unprotected.
- When PHCs/subcentres have large areas to cover, a large number of villages fail to receive any immunisation services.
- In some States, house-to-house vaccination is still being provided, thus, making maintenance of the cold chain difficult.
- BCG vaccination in many States is still being given by separate teams and has not been integrated with UIP.
- BCG, measles and other groups of vaccination are given on different days, instead of on the same day. The beneficiaries have to make more visits and also find it difficult to remember dates.
- Many times scheduled sessions are postponed without prior information, leading to loss of credibility of the programme. Immunization activities are disrupted when the concerned staff get completely involved in special drives or camps for family planning activities.
- Despite the fact that facilities for immunisation exist in different health institutions, the opportunities for providing such services to the eligible population attending these institutions for various services are not adequately utilized due to the lack of appreciation among the staff and authorities regarding the implications of such missed opportunities.



## 16.2 Supervision

- Supervision at all levels is one of the most neglected management functions. Supervisory visits are generally unplanned and unscheduled, without making any report of the visit or informing the PHC/subcentre area where improvement is needed. No effort is made to ensure that the lacunae or deficiencies observed on the earlier visit, have been bridged.
- Supervisory check-lists are not routinely used. First level supervisory staff (HAs) are not being routinely supervised.
- Transport facilities are not adequate.
- Delay in payment of TA/DA is a severe deterrent in carrying out supervisory visits.

## 16.3 Monitoring

- Monitoring is generally limited to reviewing monthly reports and comparing achievements against targets. Generally, no effort is made to find out the utilisation of vaccine vis-a-vis the number of immunisations performed. Even at the District level, in review committees chaired by the District Collectors, emphasis is mostly on target achievement only.
- In general, there appears to be a lack of effort to find out the proportion of eligibles protected. Generally, no enquiry is made about the occurrence of VPD or any untoward reaction after vaccination.
- For effective monitoring and, thereby, corrective action at the peripheral level, monitoring should be undertaken village-wise which is the most peripheral unit of activity for the health worker. Such efforts are generally lacking and the unit under consideration is usually the subcentre without further break up into villages.

## 16.4 Records and Reports

These are the eyes of any programme, helping to understand how much has been achieved, what remains to be achieved and how best it can be done. Well maintained records help to apply mid-course corrections. Unfortunately, the record system is yet another neglected area. Births and deaths are expected to be registered, enumeration records of beneficiaries are to be maintained, and regularly updated records of beneficiaries for different vaccines are to be maintained according to age and sex. All are being maintained but are generally incomplete and not updated. Likewise, reports are incomplete and it is generally difficult to rely upon them. In the absence of any scrutiny, the tendency of misreporting develops. Generally, performance is over-reported whereas VPD cases or untoward reactions are under-reported.



## **17. Disease Surveillance**

It was found to be one of the weakest links in the programme and the following constraints were noticed;

- Sentinel centres have been identified, but many have not become operational.
- Staff at the sentinel centres have not been adequately trained.
- Records about VPDs are not maintained according to age, sex, residence, immunisation status, etc.
- Sentinel centres are generally not involved in the investigation of outbreak of cases.
- Records for untoward reactions except death are not maintained properly.
- Special surveys for finding out disease load or active surveillance are not adequately carried out.
- There are no periodic reviews of reported VPD cases and such cases are generally not investigated.

## **18. Medical Colleges**

Even though, from the initiation of UIP, medical colleges were expected to play a very significant role in the programme, in many States there seemed to be a certain degree of ambiguity in terms of area responsibilities, distribution of targets and resources and coordination and supervision between State/district administration and medical colleges.

## **19. International Organisations**

The contribution of international organisations like UNICEF and WHO towards the Immunisation Programme is highly commendable. These have been in terms of technical support through manpower development, support for supplying material resources of various types for the programme i.e. service, training and finances for undertaking coverage evaluations and various training/continuing education activities. In certain situations, however, there appeared to be problems of coordination between these agencies.



## Recommendations

In the light of various observations made during the national review and considering the urgency in achieving the targets set for the programme, the following major recommendations have been made. While some of these pertain to certain policies to be decided, particularly at the national level, a few relate to various aspects of the programme management, including its resources, and a few others relate to the involvement of different Government and Non-Governmental agencies in the programme through effective linkage for the ultimate success of the programme.

### 1. POLICIES

#### 1.1 Programme Acceleration

The date to reach the target of protecting 100% of pregnant mothers and 85% of infants is fast approaching. The results of various immunisation coverage evaluation surveys, including the one conducted under the National Review of the Immunisation Programme, and reports of eligibles protected, published by the Government of India, are not very encouraging and point out the glaring need for acceleration.

In October 1985, while launching the Universal Immunisation Programme, the Prime Minister of India had addressed the nation, emphasising the need and urgency to save children from six vaccine preventable diseases. He appealed to one and all to make the programme a real success, so that it could become a true living memorial to the late Prime Minister Smt. Indira Gandhi. Given the prevailing situation, there is an urgent need to push up the programme. Therefore, it may be considered worthwhile to request the Prime Minister to address a communique to all the Chief Ministers of the States, reiterating the goals of UIP and seeking their full and whole-hearted support. They may be further requested to assume responsibility to ensure coverage in their States of all pregnant women with TT and all eligible children with vaccines against the six VPDs.



1.2 Based on the findings of this review and other coverage evaluation surveys, it has been clearly seen that to achieve the goals and targets set for the programme by 1990 for the whole country is almost impossible. Therefore, it would be appropriate to reconsider the goals in terms of the target date.

### 1.3 Sustainability

Reaching goals for immunisation is not a one time venture. Protecting the eligible population is a continuous process and, consequently, sustained efforts with equal vigour will be required for years to come. Though fiscal requirement for non-recurring items may be reduced, the recurring expenditure will remain the same. Hence, Central Government or donor agencies, before deciding to stop 100% support, should prepare the State Governments to assume full responsibility for the Immunisation Programme. It should not be allowed to degenerate for want of will or resources.

It should be remembered that reaching the target of 85% and 100% immunisation coverage of children and pregnant women respectively has to be spread over every nook and corner of the country. It is, therefore, necessary to review the progress in every smallest unit viz. the village in rural areas, and wards in urban areas. The poor performing areas in a district, poor performing districts in a State and poor performing States in the country should be identified and intensified efforts should be put in to bridge the gap.

Similarly, for difficult areas in hilly regions and desert and tribal areas, or areas inundated by floods, the State authorities should organise special drives by forming special squads. Squads will require extra resources like manpower, transport, POL, etc. which should be provided.

### 1.4 Urban Areas

There are 12 metropolitan cities, 40 medium sized towns and around 1,700 Municipalities nearing a total of 1,822. They have not been brought into the ambit of universal immunisation. Generally, urban areas have different kinds of health facilities providing immunisation services. Big cities like Bombay, Madras, Calcutta and Delhi are running their own programmes, but this is not true for all. Depending on local health authorities, particularly local self-Government, may prove deceptive. All of them do not have the will or the required resources.

Universalisation of immunisation in urban areas should be immediately scaled up with the State Government assuming responsibility rather than depending on local self-Government.

It is gratifying to note that the Central Government is seized of the problem and in all earnestness is trying to scale up the programme. Its concern for maximising



the efficiency of existing facilities and energising voluntary institutions and the public sector and enrolling private practitioners is commendable.

However, under the existing circumstances, it generally takes more than a year to operationalise a programme after its initiation. Therefore, in order to achieve the task of reaching all children born after April 1989 and protecting them by March 1990, a generalized approach might cause dilution of efforts with poor results. It will, therefore, be more appropriate to identify high risk zones or the vulnerable population, either based on the load of disease, or where chances of transmission of disease are more due to malnutrition, poor living conditions, poor sanitation or socio-economic conditions, and initiate special efforts in such areas to increase immunisation coverage and to cut down transmission of diseases.

### **1.5 Role of Panchayats**

With Panchayats being given greater recognition and responsibilities in the development process, the role of Panchayats vis-a-vis the health programme should be redefined. Until now, health programmes have remained optional activities of Panchayat. It should be made obligatory and while rating Panchayats for rewards, their achievement in the field of health activities, including immunisation, should also be reviewed. More meaningful involvement of Panchayats will not only boost the programme but ensure universal coverage.

## **2. PROGRAMME PLANNING**

Though Plans of Action for implementing the Immunisation Programme are prepared, generally they percolate from the top to the bottom and, hence, fail to generate enthusiastic responses from peripheral levels. Instead, the micro-planning process should be initiated for different levels in each district. This would help in mobilising resources, identifying and enumerating eligibles, organizing sessions and followup of drop-outs. Involvement of grassroot workers will make them responsible and accountable to achieve what they have planned.

## **3. STRATEGIES**

- Alternative approaches for difficult areas, migrating and floating population, flood affected areas, districts or States with low density of population scattered over a large area, and inclement weather allowing fewer months in the year to work, etc. should be prepared in consultation with area specific officials. All additional resources in terms of men, materials, money, etc. should be provided.

- An area specific strategy for grossly poor performing districts should be prepared instead of adopting a generalised operational strategy.



- A fixed day for immunisation sessions at all levels would help a better means of communication. Similarly, a day should be fixed for sessions at the AW or place identified by the HG. No session should be cancelled/postponed, as far as possible, particularly without prior intimation to the people.
- In villages away from subcentre, the MPW(M) may be involved to give immunisations at the AW or with the assistance of the HG.
- During the National Review of the Immunisation Programme, poliomyelitis cases in children below three months of age were reported. It is, therefore, necessary to complete OPV coverage before three months in such areas/districts. It would mean revising the vaccination schedule wherein OPV will be given independently of DPT, necessitating more visits/contacts. Hence, as a beginning, it should be considered only in areas from where occurrence of cases in such young age groups have been reported. Zero OPV dose followed by a monthly dose may be given so that the total vaccination is completed by 3-4 months of age.

#### **4. ORGANIZATION, INFRASTRUCTURE, HEALTH STAFF AND FINANCIAL RESOURCES**

4.1 Organization of the programme at the State and district levels is such that irrespective of the status of UIP implementation, the total programme is under unified control. However, at the Central level there is need to specify the roles and inter-relationship of the EPI wing of the DGHS and the Immunisation Mission in the Department Family Welfare, mainly concerned with UIP. This is particularly important since the Immunisation Programme is a continuous programme which is to be sustained for many more years.

4.2 Health facilities have expanded but not become fully operational. State Governments should provide adequate staff, transport facilities and equipment including cold chain equipment and other supplies for giving immunisation. The areas of newly created PHCs should be demarcated and subcentres should be attached to these health centres.

4.3 All vacancies at different levels should be filled up. Vacant posts of Medical Officer, HA(F) and MPW should be immediately filled. Posts of DIO, refrigerator mechanic, and statistical assistant and drivers should be created, where this has not been done, and filled up. The posts that have been sanctioned should also be filled up.

4.4 At some PHCs accommodation and all other facilities are available, but the MO and other staff still commute every day from their residence outside PHC area to the place of work. Such practices are totally unjustified. Such situations should be seriously viewed and prompt action taken to curb the habit of truancy.



4.5 Lack of involvement, with no sense of commitment and the gradually increasing culture of no work among health manpower was reported from every State and district under review. This was true for all levels of workers. Minor but easily soluble irritants like delay in payment of salary and TA/DA, sanctioning of leave, etc., should be immediately looked into and sorted out. Minor though they are, they seriously affect the morale of the workers. Awards, appreciation and recognition of good work would go a long way in generating and sustaining motivation among staff. As a long-term measure, serious efforts should be made for human resource development through a well defined national manpower management policy.

4.6 The ambiguity regarding the role of the DIO who is the officer incharge of immunisation at the district level, needs to be removed. It is generally accepted that the most effective organisational set-up at the district would be where the implementation of different programmes can be undertaken in an integrated manner, based on area-wide responsibilities rather than on the basis of vertical programmes, by the programme specialists. However, this has not yet been operationalised in most States. Under these circumstances, because of the complex managerial practices involved in the immunisation programme, the support to the district chief by an additional officer - the DIO - is made available in many States. However, to make them more effective, their specific roles, financial authority, and administrative relationship with other officials need to be clearly spelt out. The practice of officers holding additional charge of immunisation as in M.P., H.P., etc. should be discouraged as far as possible.

4.7 With reference to financial resources, the procedures related to sanctioning and releasing of funds from the Centre to the States and from the State to lower, levels need to be streamlined. Efforts to properly utilise the available funds as well as proper accounting procedures have to be ensured at the State level. Further, the States should have adequate contingency funds available and should be allowed flexibility to rationally use the same according to their specific local needs with an inbuilt monitoring system.

## **5. SUPPLIES**

### **5.1 Vaccines**

- Vaccines should be supplied only on monthly basis instead of quarterly. This is important because if for any reason one batch of vaccine is found unsatisfactory, only a small quantity of vaccine would have to be destroyed.
- Utilisation of vaccine should also be taken into account while deciding about quantities to be supplied.



- Supplies should be made by the indenting system instead of the push system.
- In spite of repeated instructions, there is a tendency to reuse the open or reconstituted vaccine vials, due to audit objections. Therefore, manufacturers should be asked to supply vaccine preferably in single dose ampoules or five doses vials and clear-cut instructions should be issued about discarding of the leftover vaccine so as to dispel the fear of objection by audit from the mind of the Medical Officer of the PHC.

## 5.2 Other Supplies

- State and district administration should ensure adequate supplies of sterilising equipment, cold chain equipment, syringes, needles, etc. Syringes and needles should be treated as consumable articles and regularly replenished as per need.
- Apart from ensuring availability of adequate quantum of supplies at district level, special care needs to be taken to arrange for proper and timely distribution of the same to the peripheral institutions upto the subcentre level.
- Registers, printed forms, immunisation cards and stationery items should be supplied to meet the annual requirement.

5.3 Walk-in-coolers, wherever not supplied in adequate number, should be provided. Wherever they have been provided but not installed, immediate steps should be taken for their installation. Delays in maintenance due to shortage/non-availability of spare parts should be avoided. Voltas and Blue Star with whom the States have rate contracts for maintenance should ensure timely action.

5.4 Automatic generators should be provided with these walk-in-coolers.

5.5 The ILR at the PHC should be supplemented with a deep freezer for increasing facilities for freezing ice packs.

5.6 Voltage stabilisers of appropriate quality and dial thermometers in adequate number should be supplied.

5.7 Thermocole boxes used by the MPWs should be withdrawn. They should be compelled to use either vaccine carriers or day carriers with a reasonable number of frozen ice packs. This is necessary to ensure safe transit of vaccines from PHCs to subcentres.

5.8 The feasibility of supplying solar refrigerators or kerosene refrigerators should be explored for areas where there is no power, or electric supply is very erratic.



- 5.9 In areas like Leh, Kargil and Lahual Spiti where temperature goes much below 0°C, equipment to protect the 'T' group of vaccines from extreme cold should be provided.

## 6. COLD CHAIN MAINTENANCE

Phenomenal progress has been made in strengthening the cold chain system for keeping vaccines at the required temperature, from the stage of manufacture till they are administered to the beneficiaries. Yet several snags need to be plugged to ensure that children are vaccinated with effective and potent vaccine.

- 6.1 At all airports particularly at Calcutta and the North-Eastern sector airports, cold chain facilities should be immediately provided so that in the event of delays, the vaccine can be stored at the required temperature. A specific strategy for the supply of vaccine to the North-Eastern States should be evolved, so that vaccine reaches safely and in time.
- 6.2 Gradually, number of private practitioners involved in giving immunisation to their clients is multiplying. Large number of them purchase vaccine from chemists and druggist shop. It should be ensured that these shopkeepers who sell vaccine keep them in optimal conditions. Drug inspectors should periodically inspect the facilities available for keeping the vaccine and should regularly get samples of vaccines tested.
- 6.3 An orientation programme for private practitioners and chemists and druggists may be organised to familiarise them with the requirements for maintenance of the cold chain, so that they maintain the vaccine in optimal condition and not reuse opened/reconstituted vials after the prescribed period.

### 6.4 Monitoring of Vaccine Quality

- Nearly 30-40% of OPV samples tested have been found unsatisfactory, yet have been used to immunize children. Hence, utilization of vaccine should be cycled in such a way, that no incoming lot of vaccine is used before its potency has been tested. Samples should be picked up from packages received from airports and sent immediately for potency testing. It should be so arranged that the results are available within a fortnight. If the samples are found unsatisfactory, the whole lot should be destroyed. This will obviate the chances of vaccinating children with unsatisfactory vaccine.
- A similar practice should be adopted for vaccine at the district and PHC levels.
- Such an arrangement would require the picking up and testing of a large number of samples. It will be difficult for the present regional laboratories



to cope with the load of work. As it is, there is a great deal of time lag in the reporting of results.

- It is recommended that the Microbiology departments of medical colleges should be equipped and staff trained to carry out OPV potency testing. This was envisaged in the original memorandum of expenditure of the Finance Committee of the Government of India, but has not been implemented so far. Hence, without any further delay, facilities for testing of OPV samples should be multiplied and made operational.

## 7. TRAINING

The need for organizing training programmes for UIP for different levels of functionaries is fully appreciated at both State and national levels. Conscientious efforts are being made to augment the knowledge and skill of workers by running a number of training courses at different levels in the States and at the national level.

Middle level managers are being trained at the national level. Besides, training is teamwork. Training a single official from a district without support staff, is not enough. Keeping the constraints in mind, the following are proposed: From each State, a core group of trainers, drawn from medical colleges, HFWTC, Nursing Colleges, Health Administration, etc. should be identified. They should be trained at the national level. Hence, at the national level only a core group of trainers should be trained.

These core groups of trainers, in turn, should train a sub-group of trainers drawn from the districts. Besides, they should organize training programmes for middle level managers and medical officers of PHCs.

Sub-groups of trainers from the districts may include the senior doctor as incharge, the BEE and Senior Paramedical Assistant from different programmes. This group will thus act as a district training team and will be responsible for training of all para-professionals, orientation training to new entrants and refresher courses. As far as possible, all the new entrants should undergo such training before joining duty.

Each member of the DTT (District Training Team) should be assigned a specified number of PHCs/institutions which they should visit to monitor the impact of the training.

Audio-visual aids and other teaching aids, should be provided in the local language, if possible.

The HFWT Cs, public health training institutes, nursing colleges and medical colleges should be utilized for organizing courses for middle level managers and PHC doctors. On the concluding day of the course, senior level programme administrators should attend the course, so that the trainees may discuss their



administrative problems and doubts and seek clarifications. However, it is important that their problems should not be brushed aside. They should be seriously looked into and proper solutions given.

Orientation courses for medical officers working in the Central Government, private sector and public sector organizations and private practitioners should also be organized.

## **8. SUPERVISION**

- Schedules for supervision should be developed well in advance and adhered to.
- Observations made during supervisory visits should be recorded and the problems identified should be solved either locally or recommended to the higher authorities.
- Feedback should be obtained for action taken or suggestions made during the visits.
- A check-list should be used for supervision.
- Registers and reports should be scrutinized for their completeness, correctness and updatedness.
- Scrutiny should be made for registration and enumeration of beneficiaries and should be tallied with estimates and the number protected, and the action taken for the reduction of drop-out should be verified. If wide gaps are observed, the cause should be looked for. The need for completeness should be explained to the workers.
- Inquiries about VPDs should be made on every visit.

## **9. MONITORING**

- At the national level, the Director, Technology Mission, conducts periodic meetings of State EPI officers, where all aspects related to UIP are discussed and prompt decisions are taken. Such meetings are found to be useful and act as stimulus for gearing up.
- Since EPI officers are not the final decision makers, it is suggested that meetings of State Directors of Health Services may also be organized from time to time. For the sake of convenience, meetings may be organized in four zones and held at least once a year. It should not be enough to review target achievement alone but all other related issues should be examined. For example, the number of immunisations given against expected beneficiaries, utilization of vaccines against immunisations given, percentage of children below one year protected against vaccine preventable diseases, adverse reactions and occurrence of VPDs, etc. The pattern should be



similar to the one adopted at the national level. Enquiries should be made about inter-district/PHC variation.

- Every effort should be made to prevent over-reporting of performance. Since the Immunisation Programme comes under the 20 point programme, its progress is reviewed by the Prime Minister's Secretariat. To avoid any adverse remarks, there is a tendency to inflate achievements.
- Money for POL and contingency should be released and reimbursement of TA/DA and any contingent expenditure should be made without any delay. Problems and difficulties brought out by the staff at district/State level meetings, should be seriously looked into and immediate solutions should be provided. The complaints should not be brushed aside. Such behaviour causes frustration among the workers and demoralises them.
- The concept of using one syringe and needle and not using opened vials should be reinforced time and again. Observation visits during immunisation sessions will help in correcting these issues.
- Standardized registers, report forms and sufficient stationery should be provided at all levels. Formats of registers and reports should not be frequently changed. Only monthly reports should be obtained from subcentre, PHC and district. The system of quarterly or annual reports should be suspended at these levels. On the contrary, all information should be collated and reports prepared at the higher levels. The reporting agencies should receive feedback from them on various aspects of performance.

## **10. PROGRAMME EVALUATION**

Currently, coverage evaluation is being encouraged; once baseline data is made available, the periodicity for repeating the same is to be locally decided, keeping in mind the resource constraints. The scope of such evaluatory efforts should be widened to include the operational aspects of the programme also, so that corrective measures can be suggested.

## **11. DISEASE SURVEILLANCE**

- With increasing coverage levels of beneficiaries, disease surveillance, investigation of VPD cases and adverse reactions following immunisation need priority. It is important not only for the purpose of evaluating the disease load, but helps to understand how much has been achieved and how much has not, and why it has not been achieved. It helps to identify vulnerable areas and apply alternate approaches to reduce the disease burden.



- With the presumably gradual decline in VPD cases, it becomes critically important to identify the maximum number of cases and investigate them to find out the source of infection, to enlist contacts and protect them.
- Similarly, any adverse reaction or death following immunisation results in reversing the wheels of progress. It is, therefore, important that all adverse reactions and deaths should be thoroughly investigated, and the public educated about them and suitably compensated.
- Despite the lacunae and weaknesses in passive surveillance, its importance cannot be ignored. Therefore, all sub-divisional, district and teaching hospitals identified as sentinel centres should be charged with the responsibility of recording and reporting all VPD cases. Different categories of staff like child specialists, epidemiologists and medical record officers or technicians should be trained e.g. as per their job requirements to diagnose VPDs at the earliest and/or to maintain all the records according to relevant details like age, sex, residential address and immunisation status. All VPD cases should be reported by the sentinel centres to the district administration and State authorities for appropriate and timely action.
- Monthly meetings for the staff from sentinel centres and district/State health administration should be held to review the cases and take appropriate action.
- Similarly, in the monthly meeting of medical officers of Primary Health Centres and urban health facilities, VPD cases should be reviewed. If possible, the officers incharge at the sentinel centres should also attend such meetings.
- All reports should be thoroughly reviewed and scrutinised at the State level before being sent to the national level.
- The national level tendency for underreporting of VPDs should be discouraged. Workers should be encouraged to report all cases without fear. They should not be reprimanded even if a case reported by them is not a confirmed VPD. On the contrary, such opportunities should be utilized for training and raising their competence.
- Neonatal tetanus generally occurs in cases where deliveries are conducted at home by untrained birth attendants (TBAs). Hence workers do not come to know of such deaths. The AWW/HG should be encouraged to enquire about as well as record and report all neonatal deaths, which should also be investigated by the health staff.

Similarly, registration of births and deaths is now the responsibility of village panchayats. Review of registration and neonatal deaths at the panchayat level will go a long way in improving reporting. All neonatal deaths should be



investigated. To ensure complete registration, PHCs and subcentres should notify all births and deaths to the panchayat of the area. This will encourage the panchayat authorities to maintain complete records.

In areas with a very high percentage of coverage and low incidence of VPD, the feasibility of introducing active surveillance/search technique (as adopted in smallpox) may be considered or tried. Pictures of VPD cases with major signs and symptoms may be displayed at prominent places and people should be requested to report to the nearest health facility if they come across such cases. All such reported cases must be investigated.

The UNICEF assists medical colleges in carrying out coverage evaluation. It will be more useful if medical colleges, in addition, carry out annual disease surveys using neonatal tetanus and polio as indicators. The samples may be drawn from the districts with differing rates of coverage and cases reported. Such exercises will help in classifying districts and areas by coverage levels and incidence of disease. It will also help in unravelling the reasons for continued high incidence inspite of reported high coverage. It may again be repeated that it will not suffice to merely classify the areas, and it is important to modify the operational strategy to achieve some tangible results.

To strengthen the disease surveillance system, it is imperative that the situations uncovered should result in some action. If reports are merely filed without providing operational answers, gradually the interest will fade and the whole system will degenerate. Similarly, the periodicity of disease occurrence, changing patterns of age, building up of the level of immunity, all should be taken into consideration. The lessons of the sixties of smallpox outbreaks inspite of more than 100% protection and the resurgence of malaria, just when the nation was getting ready to achieve zero malaria status should not be forgotten.

Practitioners of ISM, or dispensaries of ISM, registered medical practitioners and private practitioners treat a fairly large segment of the population, including children. Their involvement in reporting vaccine preventable diseases should be seriously considered. They may be provided with prepaid post-cards to mail details of VPD cases whenever they may come across these in their clinics. Reports provided by them should not only be acknowledged, but they should be given feedback of the results of investigation and action taken.

## **12. INFORMATION, EDUCATION AND COMMUNICATION**

The media section should be strengthened by increasing the number of positions and posting trained persons. IEC is a very specialized job involving teamwork and requiring experts for the media, for the preparation



- of publicity and educational material and communication. Hence, providing a single functionary without adequate back up will not be sufficient.
- Personnel in IEC should be trained in programmes related to child survival, including UIP.
  - Adequate funds should be provided for procuring and producing material according to the needs of the State.
  - The State Health Education Bureau and media/IEC cells should coordinate their activities. This will avoid duplication of efforts and maximise the utilization of resources.
  - 16 mm. projectors and other audio-visual equipments which have been condemned should be replaced and supply of these should be ensured according to the needs of the States.
  - Community Need Assessment (CNA) surveys may be carried out, particularly in special groups of the population, so that programmes for educating these groups may be more realistic.
  - An adequately informed community is most essential for the success of the programme, hence all efforts to disseminate messages to the most remote areas through health and non-health personnel should be made.
  - Efforts to develop communication skills among health personnel at all levels are most essential and, therefore, be incorporated in all training activities. They should also be provided with easy to carry educational materials.
  - Linkage should be established with literacy mission and dissemination of knowledge on health related subjects including immunisation should find place during adult education programmes.

### **13. LINKAGE**

13.1 Linkages within the health sector among different components as well as with health related sectors were found to be missing or marginal and they need to be strengthened. It is recommended that within the health sector, different agencies/bodies need to be involved with proper coordination in terms of joint planning and sharing of targets, area responsibilities and resources e.g. State Government, Central Government health agencies, Employees State Insurance Corporation, Railways, Armed Forces, etc. Effective linkages need to be developed with different public sector undertakings and voluntary organizations also.

#### **13.2 Involvement of Private Practitioners**

During the review, private practitioners were found to be playing a significant role in the Immunisation Programme in many places. It is,



therefore, suggested that the private practitioners' support in UIP should be maximised by :

- Quarterly meetings to discuss the Government's approach to child survival, including various aspects of the Immunisation Programme. During these meetings, VPD cases reported during the quarter may also be discussed.
- Private practitioners should be supplied with vaccine irrespective of the fact that they charge fee for services. It should not be forgotten that the cost of vaccine is not more than one tenth the cost of the total time and effort put in by private practitioners. This will spare the Government functionary's time and enable their involvement in UIP for better coverage.
- Printed forms/cards may be supplied for maintaining records and reports to the non-governmental organizations.

### **13.3 Involving Professional Bodies**

- Support from professional bodies like State branches of IMA Association of Paediatricians, Association of Obstetricians and Gynaecologists, TB Association, etc. should be taken in mobilizing their members to accept the responsibility in a national programme of such vital importance.
- Distribution of vaccine can be channelised through these bodies under the guidance of State UIP Officers.
- Their help can be sought in organising special drives, or spreading the message through popular talks in educational institutions.

## **14. INTERNATIONAL SUPPORT**

International support as is available today for this programme is highly appreciated. While the effort should be to indigenise the technology for the programme in the long run, the support - technical as well financial - available from the international agencies, should be properly channelised towards areas like human resource development. There should also be proper coordination between such agencies as well as with the Central and State Governments while deciding on the nature of support.



## **APPENDICES**







*List of States and Districts Covered Under National  
Review of Immunisation Programme*

Sl. No.	Name of States Districts	Year of Initiation of UIP
1.	ANDDHRA PRADESH	
	a. Cuddapah	1985
	b. Warangal	1987
2.	ASSAM	
	a. Dibrugarh	1986
	b. Nowgaon	1987
3.	BIHAR	
	a. Katihar	1985
	b. Singhbhum	1987
4.	GOA	
	a. North Goa	1986
5.	GUJARAT	
	a. Panchmahal	1986
	b. Rajkot	1987
6.	HARYANA	
	a. Bhiwani	1986
	b. Hissar	1987
7.	HIMACHAL PRADESH	
	a. Shimla	1986
	b. Bilaspur	1987
8.	JAMMU & KASHMIR	
	a. Anantnag	1985
	b. Badgam	1986
9.	KERALA	
	a. Quilon	1986
	b. Kasargode	1987
10.	KARNATAKA	
	a. Bijapur	1985
	b. Tumkur	1987
11.	MADHYA PRADESH	
	a. West Nimar	1986
	b. Mandla	1987
12.	MAHARASHTRA	
	a. Nanded	1985
	b. Pune	1987
13.	ORISSA	
	a. Ganjam	1986
	b. Sambalpur	1987
14.	PUNJAB	
	a. Sangrur	1985
	b. Patiala	1987



15. RAJASTHAN	
a. Bharatpur	1985
b. Jhalawar	1987
16. TAMIL NADU	
a. Coimbatore	1986
b. South Arcot	1987
17. UTTAR PRADESH	
a. Meerut	1986
b. Kanpur Dehat	1987
18. WEST BENGAL	
a. Burdwan	1986
b. Murshidabad	1987
19. ARUNACHAL PRADESH	
a. Tirap	1986
b. Subanbir Lower	1987
20. MANIPUR	
a. Imphal	1986
b. Thoubal	1987
21. MEGHALAYA	
a. West Khisa Hill	1986
b. West Garo Hill	1987
22. MIZORAM	
a. Aizwal	1986
b.	
23. NAGALAND	
a. Kohima	1986
b. Mokochung	1987
24. SIKKIM	
a. East Sikkim	
b. South Sikkim	1987
25. TRIPURA	
a. Tripura West	1986
b. Tripura South	1987

Sl. No.	Name of Metros	Year of Initiation of UIP
1.	CALCUTTA	1988
	a.	
	b.	
2.	BOMBAY	1988
	a.	
	b.	
3.	DELHI	1987
	a.	
	b.	
4.	MADRAS	1989
	a.	
	b.	

*Number of States, Districts and Institutions Visited  
and Persons Interviewed*

Major States	18
Metros	4
North Eastern States	7
	<hr/>
Total Units	29
	<hr/>
<i>Districts/Zone</i>	46
Primary Health Centre	199
Urban Health Facility	152
Subcentre	380
District Hospital/Sentinel Centre	105
Missed opportunity Study	5
Urban/Village Clusters	1350
<i>Persons Interviewed</i>	
AWW/HG interviewed	1350
Village /Community Leaders	1300
Additional questions	
(Mothers interviewed)	1350
Health Assistants interviewed	200
Private Practitioners	200
Staff Time Utilisation	
(Staff interviewed)	300



*List of Team Who Assisted in National Review of  
Immunisation Programme in Different States.*

Name of the States	Name of The Convenor
Arunachal Pradesh	Dr.G.Sreenath, Professor, Epidemiology, S.P.M. Department, Osmania Medical College, Hyderabad, A.P.
Andhra Pradesh	Dr. (Brig) S.L. Chadha, Community Health Consultant, Sitaram Bhartiya Institute of Scientific Research, D-9, South Extn. II, New Delhi.
Assam	Dr. O.P. Gupta, Retd. Director, Health, Medical Services and Medical Education, Gujarat.
Bombay Corporation	Dr. B.K. Kapila, Consultant Health and Family Welfare, Government of Punjab, Chandigarh.
Bihar	Dr. I.C. Tiwari, Prof. and Head, Comm. Med. Institute of Medical Sciences, Banaras Hindu University, Varanasi.
Calcutta Corporation	Dr. S.D. Gaur, Professor, Deptt. of P.S.M., Institute of Medical Sciences, Banaras Hindu University, Varanasi.
Delhi Corporation	Dr. Baldev Raj, Professor and Head, Department of P.S.M., M.L.N. Medical College, Allahabad.
Goa	Dr. S.W. Kulkarni, Professor and Head, Department of P.S.M., Indira Gandhi Medical College, Nagpur.
Gujarat	Dr. G.M. Mathur, Professor & Head, Department of P.S.M., Dr. P.D.M. Medical College, Amravati.
Haryana	Dr. V.K. Arora, Professor, Centre for Management Studies, HCM Rajasthan State Institute of Public Administration, Jaipur-302017
Himachal Pradesh	Dr. D.M. Saxena, Professor and Head of Department Preventive and Social Medicine, Government Medical College, Surat.
Jammu & Kashmir	Dr. A.S.Sekhon, Professor, P.S.M. Medical College, Patiala.
Kerala	Dr. K.V. Santha, Professor-Director, Department of Comm. Medico, Madras Medical College, Madras-6.
Karnataka	Dr. G.A. Panse, Addl. Director, State Family Welfare Bureau, Kutumb Kalyan Bhawan, Behind Pune Railway Station, Pune 411001 (Maharashtra).
Madras Corporation	Dr. K. Balaraman, Ex. Director of Health Services, Kerala.
Madhya Pradesh	Dr. H.N.S. Grewal, Ex. Director of Health Services, Punjab, Chandigarh.

Mizoram	Dr. I.U. Dudani, Professor, P.S.M. Community Medicine, Medical College, Ajmer, Rajasthan.
Meghalaya	Dr. C. Shivaram, Prof. Community Medicine, Medical College, Biliary, Karnataka.
Manipur	Dr. S.K. Ahluwalia, Professor, Community Medicine, Medical College, Shimla, H.P.
Maharashtra	Dr. P.N. Sehgal, Consultant, VHAI, New Delhi.
Nagaland	Dr. Janardhan Reddy, Professor, Community Medicine, Medical College, Kurnool, Andhra Pradesh.
Orissa	Dr. S.C. Chawla, Prof. Community Medicine, Lady Hardinge Medical College, New Delhi.
Punjab	Dr. R.D. Bansal, Prof. & Head, Community Medicine, Lady Hardinge Medical College, New Delhi.
Rajasthan	Dr. D.E. Ingole, Prof. & Head, Community Medicine, Medical College, Nagpur.
Sikkim	Dr. Phanender Rao, Prof. Community Medicine, Medical College, Manipal, Karnataka.
Tripura	Dr. V.N.S. Tomar, Prof. Community Medicine, Medical College Jaipur, Rajasthan.
Tamil Nadu	Dr. G. Anjaneyulu Prof. Community Medicine, Osmania Medical College, Hyderabad.
Uttar Pradesh	Dr. N.D. Kathal, Retd. Jt. Director, Govt. of Madhya Pradesh, Bhopal (M.P.).
West Bengal	Dr. B. Chakladhar, Prof. & Head, Community Medicine, Medical College Manipal, Karnataka.

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*List of the Members of the Task Force Group*

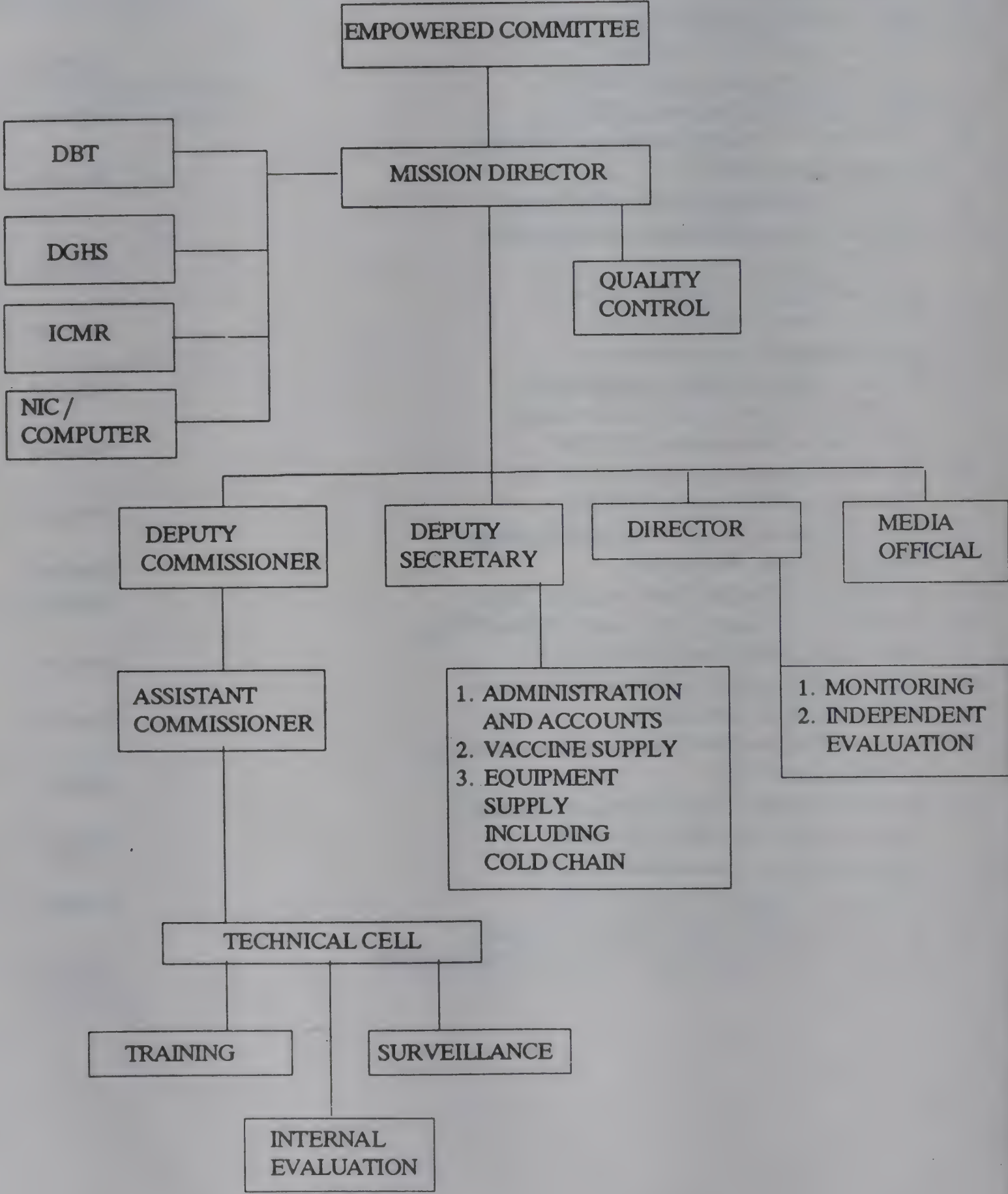
- |    |                     |  |
|----|---------------------|--|
| 1. | Mr. Rolf Carriere   | Chief Health and Nutrition, UNICEF, New Delhi.   |
| 2. | Dr. Imam Mochny     | Advisor (Imm.) SEARO WHO, New Delhi.   |
| 3. | Shri P.K. Mehrotra  | Joint Secretary and Director, National Mission on Immunisation, Ministry of Health and Family Welfare. |
| 4. | Dr. Harcharan Singh | Advisor Health, Planning Commission.   |
| 5. | Dr. K.B. Banerjee   | Dy. Commissioner, MCH, Ministry of Health and Family Welfare.  |
| 6. | Dr. S.P. Tripathi   | Additional Director General, Indian Council of Medical Research (ICMR)                                 |
| 7. | Dr. K.P. Dutta      | Assistant Director General (EPI), Ministry of Health and Family Welfare.                               |
| 8. | Dr. J.P. Gupta      | Director, National Institute of Health and Family Welfare  |
| 9. | Dr. Indira Murali   | Associate Professor, National Institute of Health and Family Welfare.                                  |

*Members of the Planning and Implementation Group*

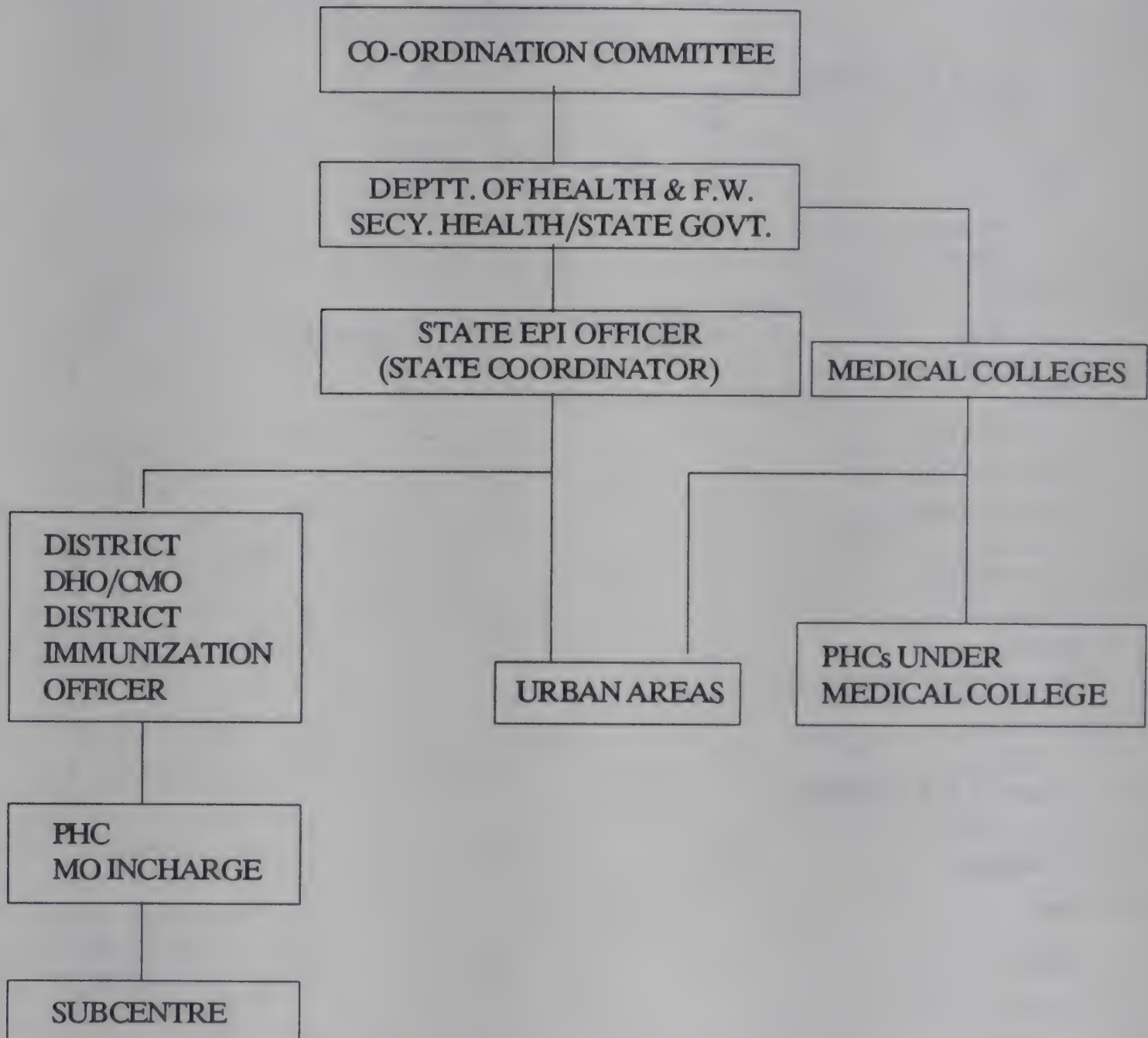
1.	Dr. J.P. Gupta, Director, NIHFW	Chairman
2.	Dr. T.R. Anand, Prof., Medical Care and Hospital Administration, NIHFW	Co-Chairman
3.	Shri D.H.Nath, Associate Professor, Education and Training, NIHFW	Member
4.	Dr. Y.P.Gupta, Associate Professor, Planning and Evaluation, NIHFW	Member
5.	Dr. (Miss) A.Bardhan, Associate Professor, Social Sciences, NIHFW	Member
6.	Dr. A.K. Aggarwal, Associate Professor, Medical Care and Hospital Administration, NIHFW	Member
7.	Dr. P.L.Trakroo, Assistant Professor, Social Sciences, NIHFW	Member
8.	Mrs. Mangla Kataria, Assistant Professor, Statistics and Demography	Member
9.	Dr. (Mrs.) S.Menon, Assistant Professor, Reproductive Biomedicine, NIHFW	Member
10.	Mr. B.B.L. Sharma, Assistant Professor, Planning and Evaluation, NIHFW	Member
11.	Dr. S.C. Chawla, Prof. PSM, Lady Hardinge Medical College, New Delhi.	Member
12.	Dr. Brig. S.L.Chadha, Retd. M.H.O., Delhi	Member
13.	Dr. (Mrs) S.K. Gupta, Dy. Health Officer (FW), Municipal Corporation of Delhi, Delhi	Member
14.	.Dr. N.C. Srivastava, Cold Chain Consultant, WHO, SEARO, New Delhi	Member
15.	Dr Imam Mochny Retd. Advisor (Immunisation) SEARO, New Delhi	Member
16.	Mr. Rolf Carriere Chief Health and Nutrition, Representative, UNICEF, New Delhi	Member
17.	Dr.K.B.Banerjee, Commisioner, MCH, Ministry of Health & Family Welfare	Member
18.	Dr. (Mrs) Indira Murali, Associate Professor, Deptt. of Community Health Administration, NIHFW	Member Secretary.



*Organisational Structure - Mission Directorate/(Ministry of H. & F.W.)*



## ORGANISATIONAL STATE LEVEL STRUCTURE





*Staff Position at District Head Quarter  
UIP*

Sl. No.	Name of States Districts	DIO	Refrigerator Mechanic	Statistical Assistant	Driver
1.	ANDHRA PRADESH				
	a. Cuddapah	F	V	F	F
	b. Warangal	F	F	V	F
2.	ASSAM				
	a. Dibrugarh	F	F	F	F
	b. Nowgaon	F	F	F	F
3.	BIHAR				
	a. Katihar	F	V	F	V
	b. Singhbhum	V	V	V	V
4.	GOA				
	a. North Goa	F	F	V	F
5.	GUJARAT				
	a. Panchmahal	F	V	F	F
	b. Rajkot	F	V	F	F
6.	HARYANA				
	a. Bhiwani	F	V	F	F
	b. Hissar	F	V	V	F
7.	HIMACHAL PRADESH				
	a. Shimla	F	V	F	F
	b. Bilaspur	V	V	V	F
8.	JAMMU & KASHMIR				
	a. Anantnag	V	V	F	F
	b. Badgam	F	V	F	F
9.	KERALA				
	a. Quilon	F	F	F	F
	b. Kasargode	F	F	F	F
10.	KARNATAKA				
	a. Bijapur	F	V	F	V
	b. Tumkur	F	F	F	V
11.	MADHYA PRADESH				
	a. West Nimar	F	V	V	V
	b. Mandla	V	V	F	F
12.	MAHARASHTRA				
	a. Nanded	F	F	F	F
	b. Pune	F	F	F	V
13.	ORISSA				
	a. Ganjam	F	F	F	F
	b. Sambalpur	F	F	F	F

14.	PUNJAB				
	a. Patiala	F	V	V	F
	b. Sangrur	F	V	V	V
15.	RAJASTHAN				
	a. Bharatpur	F	V	F	V
	b. Jhalawar	F	V	F	V
16.	TAMIL NADU				
	a. Coimbatore	F	F	F	F
	b. South Arcot	F	F	F	F
17.	UTTAR PRADESH				
	a. Meerut	F	F	F	F
	b. Kanpur Dehat	V	F	F	F
18.	WEST BENGAL				
	a. Burdwan	F	F	F	V
	b. Murshidabad	V	NI	NI	NI
19.	ARUNACHAL PRADESH				
	a. Tirap	V	V	V	V
	b.				
20.	MANIPUR	F	F	V	F
	a. Thoubal				
21.	MEGHALAYA	V	V	V	F
	a. West Garo Hill				
	b.				
22.	MIZORAM				
	a. Aizwal	F	F	V	F
	b.				
23.	NAGALAND	F	F	F	F
	a. Kohima				
	b.				
24.	SIKKIM	F	F	V	F
	a.				
	b.				
25.	TRIPURA	V	V	V	V
	a. South				
	b.				

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NI = No Information



*Percentage of Vaccines of Health Manpower at  
PHC /Subcentre*

Sl. No.	Name of States Districts	Medical Officer	HA(F)	MPW(F)
1.	ANDHRA PRADESH			
	a. Cuddapah	19.0	Nil	8.0
	b. Warangal	46.0	14.0	14.0
2.	ASSAM			
	a. Dibrugarh	4.1	30.0	12.5
	b. Nowgaon	2.12	Nil	37.2
3.	BIHAR			
	a. Katihar	Nil	Nil	Nil
	b. Singhbhum	34.0	Nil	Nil
4.	GOA			
	a. North Goa	Nil	9.52	8.92
5.	GUJARAT			
	a. Panchmahal	26.0	3.7	2.7
	b. Rajkot	15.2	1.9	10.0
6.	HARYANA			
	a. Bhiwani	5.8	40.0	3.1
	b. Hissar	36.0	11.1	15.8
7.	HIMACHAL PRADESH			
	a. Shimla	30.3	15.4	23.7
	b. Bilaspur	10.0	Nil	Nil
8.	JAMMU & KASHMIR			
	a. Anantnag	Nil	Nil	Nil
	b. Badgam	Nil	47.0	Nil
9.	KERALA			
	a. Quilon	Nil	NI	Nil
	b. Kasargode	NI	NI	Nil
10.	KARNATAKA			
	a. Bijapur	Nil	Nil	Nil
	b. Tumkur	16.0	Nil	Nil
11.	MADHYA PRADESH			
	a. West Nimar	10.0	17.0	29.0
	b. Mandla	20.0	10.0	Nil
12.	MAHARASHTRA			
	a. Nanded	NI	NI	NI
	b. Pune	7.27	1.55	Nil
13.	ORISSA			
	a. Ganjam	Nil	4.0	3.0
	b. Sambalpur	17.0	65.0	13.0

14.	PUNJAB			
	a. Patiala	41.4	17.7	6.0
	b. Sangrur	12.0	Nil	12.0
15.	RAJASTHAN			
	a. Bharatpur	25.0	19.0	13.0
	b. Jhalawar	Nil	9.5	3.0
16.	TAMIL NADU			
	a. Coimbatore	0.59	Nil	2.72
	b. South Arcot	37.2	51.9	12.5
17.	UTTAR PRADESH			
	a. Meerut	5.0	22.0	Nil
	b. Kanpur Dehat	15.0	Nil	Nil
18.	WEST BENGAL			
	a. Burdwan	28.6	67.6	29.4
	b. Murshidabad	Nil	Nil	31.8
19.	ARUNACHAL PRADESH			
	a. Tirap	NI	50.0	20.0
	b.			
20.	MANIPUR			
	a. Thoubal	50.0	Nil	Nil
	b.			
21.	MEGHALAYA			
	a. Westgaso Hill	60.0	30.0	Nil
	b.			
22.	MIZORAM			
	a. Aizwal	NI	NI	NI
	b.			
23.	NAGALAND			
	a. Kohima	10.0	NI	NI
	b.			
24.	SIKKIM			
	a. East	42.0	66.0	Nil
	b.			
25.	TRIPURA			
	a. South	22.9	67.6	54.0
	b.			

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NI = No Information



*Financial Allocation, Amount Released and  
Expenditure for UIP During 1985-86, 1986-87,  
1987-88, 1988-89 and 1989-90  
( Rs. in lakhs )*

Year	Allocation	Released	Expenditure
1985-86	33.5	33.50	-
1986-87	299.79	204.03	246.3
1987-88	550.29	433.14	337.22
1988-89	1158.88	623.25	258.30
1989-90	1192.49	-	-

*Status of Supply of Cold Chain Equipment During 1985-86- 1987-88*

Name of the Item	Andhra Pradesh	Assam	Bihar	Gujarat	Haryana	Himachal Pradesh	J&K
ILR-240 ltr	211	81	230	86	54	114	23
Chest Freezer 300 ltr	50	23	63	46	19	12	7
Chest Freezer 140 ltr.	0	0	0	106	0	0	17
Chest Freezer 140 ltr.	0	0	0	106	0	17	0
Voltage Stab IKVA	0	0	0	0	0	0	0
Cold Box + 24l.p.	151	55	143	138	36	90	32
Ice Packs for cold box	3644	1320	3432	3312	864	2160	768
Vaccine Carrier +4 I>P>	1977	656	1356	1486	438	1158	319
Ice Packs for V.C.	7908	2624	5424	5944	1752	4632	1276
Day Carriers + 2 I.P.	654	144	828	636	222	312	102

Name of the Item	Karnataka	Kerala	M.P.	Maharashtra	Manipur	Meghalaya
ILR-240 ltr.	107	166	101	626	10	18
Chest Freezer 300 ltr.	51	40	40	52	3	3
Chest Freezer 140 ltr.	158	0	66	0	0	0
Chest Refrez 140 ltr.	158	0	66	0	0	0
Voltage Stab IKVA	0	0	0	0	0	0
Cold Box + 24 I.P.	185	113	134	462	8	14
Ice Packs for cold box	4440	2712	3240	11088	192	336
Vaccine Carrier +4 I.P.	2191	1420	1853	120	208	208
Ice Packs for V.C.	8764	5680	7412	20568	480	832
Day Carriers + 2 I.P.	918	648	426	1872	24	48
Ice Packs for D.C.	1836	1296	992	3744	48	96
Ster.(Autoclave)	260	166	172	626	4	18
Ster Drum for Autoclave	682	423	408	1728	8	36
Steam Ster, (DR)P. cooker	1836	1296	852	3744	48	96
Stove Kerosene	11874	1602	1338	4670	72	136
Ice Packs for D.C.	1308	288	1656	1272	444	624



Name of the Item	Nagaland	Orissa	Punjab	Rajasthan	Tamil Nadu	Tripura	Sikkim
ILR-240 ltr.	9	175	81	72	295	26	18
Chest Frezer 300 ltr	2	38	27	37	53	4	2
Chest Freezer 140 ltr.	0	-	0	107	0	0	0
Chest Refrez 140 ltr.	0	-	0	107	0	0	0
Village Stab IKVA	0	-	0	0	0	0	0
Cold Box + 24 I.P.	8	111	63	100	219	18	12
Ice Pack for cold box	192	2664	1512	2400	5256	432	288
Vaccine carrier +4I.P.	114	1300	686	1220	2380	256	108
Ice Packs for V.C.	456	5200	2744	4880	9520	1024	432
Day Carriers +2 I.P.	18	366	234	330	816	96	78
Ice Packs for D.C.	36	732	468	660	1632	192	156
Ster. (Autoclave)	9	175	81	127	295	26	18
Ster.Drum for Autoclave	18	480	242	342	922	52	36
Steam Ster.(DR) P.Cooker	36	732	468	660	1632	192	216
Stove kerosene	60	1054	702	1006	2134	232	216

Name of the Item	UP	West Bengal	Arunachal Pradesh	Delhi	Mizoram
ILR-240ltr.	224	121	11	8	12
Chest Freezer 300 ltr.	99	25	2	8	1
Chest Freezer 140 ltr.	131	0	0	0	0
Chest Refrez. 140 ltr.	131	0	0	0	0
Voltage Stab IKVA	0	0	0	0	0
Cold Box + 24 I.P.	292	87	9	7	12
Ice Packs dor cold box	7008	2088	216	168	288
Vaccine Carrier +4 I.P.	3634	1138	136	48	192
Ice Packs for V.C.	14536	4552	544	192	768
Day Carriers +2 I.P.	786	528	24	18	0
Ice Packs for D.C.	1572	1056	48	36	0
Ster.(Autoclave)	353	136	11	8	12
Ster.Durm for Autoclave	914	312	22	16	24
Steam Ster.(DR)P.Cooker	1572	1056	48	96	0
Stove Kerosene	2410	1261	76	96	48

Source: Compilation of important circulars and instructions of Universal Immunisation Programme, October 1985-December 1988.

*Statement Showing Production and Requirement of Vaccines for the Programme*

*DPTVACCINE (in lakh doses)*

Institute	Installed Capacity	Produced			Proposed to be Produced						
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	
A. Public Sector											
1. C.R.I., Kasauli	155	113	131	154	160	180	200	200	200	200	
2. H.B..P.C.L., Bombay	50	60	60	40	50	70	70	100	100	100	
3. P.I.I., Coonoor	120	75	92	105	120	135	150	150	150	150	
B. Private Sector											
1. Serum Instt., Pune	600	391	342	392	600	140	1140	-	-	-	
2. Biological Evans, Hyderabad	84	-	-	-	48	84	84	-	-	-	
Total	1009	639	625	691	978	1609	1644	-	-	-	

1987-88      1988-89      1989-90  
 REQUIREMENT :      861      1046      1104



BCG VACCINE (in lakh doses)

Institute	Installed Capacity	Produced					Proposed to be Poroduced				
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	
Public Sector											
BCG Vaccine Laboratory, Guindy, Madras	240	166	204	234	230	260	260	-	-	-	
Total	240	166	204	234	230	260	260	-	-	-	

1987-88
1988-89
1989-90

REQUIREMENT:
215
261
360

MEASLES VACCINE ( in lakh doses)

Institute	Installed Capacity	Produced			Proposed to be Produced					
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
A. Public Sector				-	-	NIL	-	-		
B. Private Sector										
Serum Instt., Pune		-	-	-	-	-	240	360	-	-
Total		-	-	-	-	-	240	360	-	-

1987-88 1988-89 1989-90

REQUIREMENT : 220 313 331

Measles vaccine is being imported through UNICEF from 1987-88.



# TT VACCINE (in lakh doses)

Institute	Installed		Produced				Proposed to be Produced			
	Capacity	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93
<b>A. Public Sector</b>										
1. C.R.I., Kasauli	240	246	209	187	220	220	220	-	-	-
2. H.B.P.C.L., Bombay	100	70	70	80	100	120	120	140	140	140
3. P.I.I., Coonoor	80	50	61	71	80	90	100	100	100	100
4. I.P.M., Hyderabad	50	3	5	8	14	20	25	-	-	-
5. S.V.I., Patwadangar	10	3	8	9	10	20	20	50	50	50
6. I.P., Shillong	-	-	-	-	-	15	50	50	50	50
7. King Instt., Madras	100	-	-	8	12	30	50	60	80	100
8. S.H.I., Lucknow	-	-	-	-	-	-	5	15	25	50
<b>B. Private Sector</b>										
1. Serum Instt., Pune	1000	418	552	600	1000	1154	1154	-	-	-
2. Biologicals Evans, Hyderabad	65	-	-	-	31	65	65	-	-	-
<b>TOTAL</b>	<b>1645</b>	<b>890</b>	<b>1005</b>	<b>963</b>	<b>1467</b>	<b>1734</b>	<b>1809</b>	<b>-</b>	<b>-</b>	<b>-</b>

## REQUIREMENT:

1987-88	1988-89	1989-90
738	1150	1171

# ORAL POLIO VACCINE (in lakh doses)

Institute	Installed Capacity	Produced			Proposed to be Produced						
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	
A. No Oral Polio Vaccine has so far been produced indigenously.											
B. Oral Polio Vaccine produced in India by H.B.P.C.L., Bombay is blending of imported monovalent bulks.											
H.B.P.C.L., Bombay	60	-	-	-	-	60	60	100	300	500	
TOTAL	60	-	-	-	-	60	60	100	300	500	

1987-88 1988-89 1989-90

REQUIREMENT : 861 1040 1104

At present polio vaccine is being imported in bulk concentrate and after diluting, blending and ampouling by H.B.P.C.L., Bombay, is distributed to various States.



Quality Control of the Cold Chain for Vaccines: Testing of Field Samples of OPV

STATE	1984-88		1988		1987		1986		1985		1984						
	T:	S: ISAT	T:	S: %SAT	T:	S: %SAT	T:	S: %SAT:	T:	S: %SAT	T:	S: %SAT					
A.P.	14	8	57	3	75	6	1	17	3	3	100	1	100				
Assam	5	5	100	-	-	2	2	100	-	-	-	3	100				
Bihar	10	8	80	-	-	-	-	-	-	-	-	2	100				
Gujarat	147	96	65	19	46	51	33	65	7	5	71	1	100				
Haryana *	25	10	40	1	100	3	2	67	23	19	83	19	77				
H.P. *	197	122	62	82	71	11	11	100	4	2	50	11	9				
J & K	12	2	17	0	0	2	2	100	45	25	56	25	16				
Karnataka	201	83	41	47	33	26	9	35	2	0	0	-	-				
Kerala	18	7	39	4	40	5	2	40	26	23	88	1	0				
H.P.	34	21	62	-	-	24	13	54	2	0	0	0	0				
Maharashtra	2558	1623	63	825	67	1054	652	62	6	4	67	-	-				
Manipur	14	9	64	2	0	2	2	100	233	123	53	15	80				
Meghalaya	3	0	0	-	-	1	0	0	5	4	80	4	75				
Nagaland	3	3	100	-	-	-	-	-	2	0	0	2	0				
Orissa	11	3	27	-	-	11	3	27	3	3	100	-	-				
Punjab	29	22	76	7	70	13	9	69	-	-	-	-	-				
Rajasthan	44	32	73	4	57	5	2	40	4	4	100	2	100				
Sikkim	0	0	0	-	-	-	-	-	24	18	75	6	100				
T.N. *	123	79	64	15	68	55	38	69	19	7	37	1	100				
Tripura	0	0	0	22	-	-	-	-	-	-	-	26	69				
U.P.	42	25	60	6	60	6	2	33	13	9	69	4	100				
W.B.	12	14	82	-	-	-	-	-	15	13	87	2	50				
Delhi	100	84	84	7	88	13	7	45	16	12	75	38	97				
Goa	10	10	100	3	100	-	-	-	4	4	100	3	100				
Chandigarh	4	4	100	2	100	-	-	-	-	-	-	-	-				
D&N Haveli	7	4	57	-	-	-	-	-	-	-	-	7	57				
Pondicherry	3	2	67	0	0	-	-	-	-	-	-	-	-				
India	3631	2276	63	1627	1025	63	1290	61	454	278	61	139	92	66	121	91	75

T-Total number of samples tested

%S- Per cent Samples with 10 log 5.8 TCID 50 or above

\*Samples of suspect quality sent in 1985 and 1986

Source : No. T. 22017/4/88-UIP, Ministry of Health and Family welfare, Department of Family Welfare, Nirman Bhawan, New Delhi- 110011, 16 December, 1988.

*Status of Other Supplies During 1985-86 and 1987-88*

Name of the Item	Andhra Pradesh	Assam	Bihar	Gujarat	Haryana	H.P.	J&K
Ster (Autoclave)	1200	81	230	192	54	114	40
Ster Drum for Autoclave	630	228	571	548	132	272	124
Steam Star (DR) P. cooker	1308	288	1656	1272	444	624	204
Stove Kerosene	1688	470	1976	1600	562	976	325
Needles-20 G. (box)	0	6290	0	0	0	0	0
Needles-23 G. (box)	20590	4190	41090	20540	8430	2640	1280
Needles-26 G. (box)	13720	0	27400	13710	5620	1630	850
Syringes (Plastic) 5 ml.	0	0	0	0	0	0	0
Syringes (Plastic) 1 ml.	0	0	0	0	0	0	0
Syringes (Plastic) 1 ml.	0	0	0	0	0	0	0
Syringes (Plastic) 2 ml.	0	0	0	0	0	0	0
Syringes Glass 2 ml.	0	0	0	0	0	0	0
Syringes Glass 1 ml.	16800	5100	33500	16700	6900	2000	1000
Syringes Glass 5 ml.	9495	3555	8250	8495	1925	3905	2055
Refz. Repair Kit.	10	5	13	10	7	8	5
Jeeps/Van	39	17	44	35	9	8	6
Spirit Lamps	1659	942	1521	1587	278	1003	379
Dial Thermometer	398	132	403	384	108	228	80
Vacc. Storage Thermometer							



Name of the Item	Karnataka	Kerala	M.P.	Maharashtra	Manipur	Meghalaya
Needles-20 G. (box)	0	0				
Needles-23 G. (box)	23230	9020	13570	22420	90	730
Needles-26 G. (box)	15480	6020	9060	14930	60	490
Syringes (Plastic) 5 ml.	0	0				
Syringes (Plastic) 1 ml.	0	0				
Syringes (Plastic) 1 ml.	0	0				
Syringes (Plastic) 2 ml.	0	0				
Syringes Glass	0	0				
Syringes Glass	19000	7300	11100	18400	100	600
Syringes Glass	9760	5870	5835	25995	250	450
Refz. Repair Kit.	12	10	12	11	2	2
Jeeps/Van	40	26	26	48	2	2
Spirit Lamps	1627	941	1632	5143	256	0
Dial Thermometer	503	323	344	1252	20	36

Name of the Item	Nagaland	Orissa	Punjab	Rajasthan	TamilNadu	Tripura	Sikkim
Needles-20 G. (box)							
Needles-23 G. (box)	180	9480	7610	15900	19680	730	500
Needles-26 G. (box)	120	6320	19980	10590	13120	490	330
Syringes (Plastic) 5 ml.							
Syringes (Plastic) 1 ml.							
Syringes (Plastic) 1 mlnges (Plastic)							
Syringes (Plastic) 2 ml.							
Syringes Glass							
Syringes Glass	100	7700	6200	13000	16100	600	400
Syringes Glass	225	7405	3945	5280	14025	650	450
Refz. Repair Kit	2	7	8	13	9	2	1
Jeeps/Van	2	27	16	31	45	2	1
Spirit Lamps	96	1775	692	1174	2614	160	0
Dial Thermometer	18	273	162	254	558	52	36
Vacc. Storage Thermometer							

Name of the item	U.P.	West Bengal	Arun. Prad.	Delhi	Mizoram
Needles-20 G. (box)	40650				
Needles-23 G. (box)		17810	180	8700	
Needles-26 G. (box)	27090	11880	120	5800	
Syringes (Plastic) 5 ml.					
Syringes (Plastic) 1 ml.					
Syringes (Plastic) 1 ml.					
Syringes (Plastic) 2 ml.					
Syringes Glass 2 ml.					
Syringes Glass 1 ml.	33300	14600	100	7100	
Syringes Glass 5 ml.	13765	4240	275	200	300
Refz. Repair Kit	20	5	2	1	1
Jeeps/Van	65	78	3	10	2
Spirit Lamps	3640	800	112	80	192
Dial Thermometer	716	258	22	16	24
Vacc.Storage Thermometer					
Vacc.Storage Thermometer					



*Immunisation Status of Children in Different Units*  
(ALL RESULTS IN PER CENT)

Sl. No.	Name of States Districts	Fully Immunised Without Measles	Fully Immunised + Measles	Partially Immunised	Not Immunised
1.	ANDHRA PRADESH				
	a. Cuddapah	10.0	10.0	47.6	22.0
	b. Warangal	15.2	9.9	55.0	19.9
2.	ASSAM				
	a. Dibrugarh	45.2	28.6	26.7	28.1
	b. Nowgaon	8.6	2.8	29.5	61.9
3.	BIHAR				
	a. Katihar	4.3	2.4	35.2	60.5
	b. Singhbhum	14.55	4.6	36.6	48.8
4.	GOA				
	a. North Goa	83.6	52.3	43.3	4.27
5.	GUJARAT				
	a. Panchmahal	59.0	40.48	26.19	14.71
	b. Rajkot	51.3	32.38	32.86	15.71
6.	HARYANA				
	a. Bhiwani	62.0	46.0	32.9	5.2
	b. Hissar	47.6	29.0	34.3	18.1
7.	HIMACHAL PRADESH				
	a. Shimla	58.01	48.5	26.4	15.5
	b. Bilaspur	70.8	47.2	43.3	9.4
8.	JAMMU & KASHMIR				
	a. Anantnag	65.0	44.0	5.0	30.0
	b. Badgam	60.0	30.0	15.0	25.0
9.	KERALA				
	a. Quilon	80.5	48.6	17.1	2.4
	b. Kasargode	62.56	46.9	27.4	9.95
10.	KARNATAKA				
	a. Bijapur	22.4	16.6	30.5	30.5
	b. Tumkur	60.4	47.6	45.2	7.1
11.	MADHYA PRADESH				
	a. West Nimar	48.8	48.8	32.55	18.60
	b. Mandla	29.4	29.4	39.7	30.8
12.	MAHARASHTRA				
	a. Nanded	39.0	22.8	46.2	14.8
	b. Pune	71.1	45.0	25.1	3.8

13.	ORISSA				
	a. Ganjam	34.3	25.3	57.3	18.7
	b. Sambalpur	50.3	38.0	42.0	15.7
14.	PUNJAB				
	a. Patiala	40.8	28.9	36.0	23.2
	b. Sangrur	69.9	41.4	18.1	21.0
15.	RAJASTHAN				
	a. Bharatpur	20.7	12.2	36.6	42.7
	b. Jhalawar	30.2	12.1	38.8	33.0
16.	TAMIL NADU				
	a. Coimbatore	30.19	30.19	67.45	2.36
	b. South Arcot	24.8	24.8	71.4	3.8
17.	UTTAR PRADESH				
	a. Meerut	41.05	29.70	27.83	31.13
	b. Kanpur Dehat	11.4	8.10	40.48	48.1
18.	WEST BENGAL				
	a. Burdwan	38.67	21.6	47.17	31.13
	b. Murshidabad	19.9	14.2	37.4	48.3

**Sl. No. Name of Metros**

1.	CALCUTTA				
	a. District I	35	11.9	75.2*	12.9*
	b. District II	33.5	9.5	75.7	14.8
2.	BOMBAY				
	a. District A	74	46	Not analysed	
	b. District B	79	36		
3.	DELHI				
	a. Urban	70.4	54.6	21.2	8.3
	b. Rural	65.31	47.74	25.0	10.81
4.	MADRAS				
	a. North	76.67	45.24	Not analysed	
	b. South	70.47	45.71		

\* = Including measles



*Proportion of Beneficiaries Found with Immunisation Cards  
in Different Units*

Sl. No.	Name of States Districts	Mothers	Children
1.	ANDHRA PRADESH		
	a. Cuddapah	13.8	30.9
	b. Warangal	13.3	21.3
2.	ASSAM		
	a. Dibrugarh	28.5	28.6
	b. Nowgaon	18.9	24.8
3.	BIHAR		
	a. Katihar	0	9.7
	b. Singhbhum	41.8	9.0
4.	GOA		
	a. North Goa	36.2	81.43
5.	GUJARAT		
	a. Panchmahal	23.81	47.62
	b. Rajkot	5.21	38.09
6.	HARYANA		
	a. Bhiwani	5.6	24.6
	b. Hissar	0.9	18.5
7.	HIMACHAL PRADESH		
	a. Shima	7.11	50.47
	b. Bilaspur	24.7	52.35
8.	JAMMU & KASHMIR		
	a. Anantnag	2.4	70.0
	b. Badgam	8.3	59.0
9.	KERALA		
	a. Quilion	5.3	60.0
	b. Kasargode	NI	NI
10.	KARNATAKA		
	a. Bijapur	2.38	5.24
	b. Tumkur	8.06	10.95
11.	MADHYA PRADESH		
	a. West Nimar	30.6	53.9
	b. Mandla	7.76	23.83
12.	MAHARASHTRA		
	a. Nanded	NI	77.1
	b. Pune	NI	55.45
13.	ORISSA		
	a. Ganjam	31.2	48.0
	b. Sambalpur	NI	NI

14.	PUNJAB		
	a. Patiala	19.0	42.0
	b. Sangrur	16.0	49.0
15.	RAJASTHAN		
	a. Bharatpur	NI	24.0
	b. Jhalawar	NI	24.0
16.	TAMIL NADU		
	a. Coimbatore	22.8	28.7
	b. South Arcot	4.2	11.9
17.	UTTAR PRADESH		
	a. Meerut	NI	34.9
	b. Kanpur Dehat	7.14	35.25
18.	WEST BENGAL		
	a. Burdwan	10.8	51.4
	b. Murshidabad		22.2

Sl. No.	Name of Metros	Mothers	Children
1.	CALCUTTA		
	a. District I	28.5	NI
	b. District II	39.04	NI
2.	BOMBAY		
	a. District A	NI	NI
	b. District B	NI	NI
3.	DELHI		
	a. Urban	15.67	NI
	b. Rural	NI	NI
4.	MADRAS		
	a. North	38.1	NI
	b. South	46.45	NI

NI = No Information



*Immunisation Status of Children in Different Districts Brought  
Under UIP in 1985-87 (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	Without Measles	With Measles
1.	ANDHRA PRADESH		
	Cuddapah	10.0	10.0
2.	ASSAM		
	Dibrugarh	45.2	28.6
3.	BIHAR		
	Katihar	4.3	2.4
4.	GOA		
	North Goa	83.6	52.3
5.	GUJARAT		
	Panchmahal	54.0	40.48
6.	HARYANA		
	Bhiwani	62.0	46.0
7.	HIMACHAL PRADESH		
	Shimla	70.8	47.2
8.	JAMMU & KASHMIR		
	Anantnag	65.0	44.0
9.	KERALA		
	Quilon	80.5	48.6
10.	KARNATAKA		
	Bijapur	22.4	16.6
11.	MADHYA PRADESH		
	West Nimar	48.8	NA
12.	MAHARASHTRA		
	Nanded	39.0	22.8
13.	ORRISA		
	Garjam	34.3	25.3
14.	PUNJAB		
	Sangrur	40.8	28.9
15.	RAJASTHAN		
	Bharatpur	20.7	12.2
16.	TAMIL NADU		
	Coimbatore	60.0	30.19
17.	UTTAR PRADESH		
	Meerut	41.05	29.70
18.	WEST BENGAL		
	Burdwan	38.67	21.6

*Immunisation Status of Children in Different Districts Brought  
Under UIP in 1987-88 (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	Without Measles	With Measles
1.	ANDHRA PRADESH Warangal	15.2	9.9
2.	ASSAM Nowgaon	8.6	2.8
3.	BIHAR Singhbhum	14.55	4.6
4.	GOA	Not studied	-
5.	GUJARAT Rajkot	51.3	32.38
6.	HARYANA Hissar	47.6	29.0
7.	HIMACHAL PRADESH Bilaspur	58.01	48.50
8.	JAMMU & KASHMIR Badgam	60.0	30.0
9.	KERALA Kasargode	62.56	46.9
10.	KARNATAKA Tumkur	60.4	47.6
11.	MADHYA PRADESH Mandla	29.4	37.38
12.	MAHARASHTRA Pune	71.1	45.0
13.	ORISSA Sambalpur	50.3	38.0
14.	PUNJAB Patiala	69.9	41.4
15.	RAJASTHAN Jhalawar	30.2	12.1
16.	TAMIL NADU South Arcot	50.0	24.8
17.	UTTAR PRADESH Kanpur Dehat	11.4	8.10
18.	WEST BENGAL Murshidabad	19.9	14.2



*Immunisation Status of Children for Different Groups of Vaccine  
in Different Units (ALL RESULTS IN PER CENT)*

Sl No.	Name of States/ Districts	BCG	DPT3	OPV3	Measles	TT2
1.	ANDHRA PRADESH					
	a. Cuddapah	32.40	62.80	61.40	26.10	73.80
	b. Warangal	34.60	55.90	54.00	15.60	76.10
2.	ASSAM					
	a. Dibrugarh	52.9	60.0	56.6	32.8	52.8
	b. Nowgaon	16.6	20.0	19.0	8.6	38.6
3.	BIHAR					
	a. Katihar	10.50	22.90	25.70	2.40	28.10
	b. Singhbhum	22.54	30.05	29.10	5.64	36.60
4.	GOA					
	a. North Goa	89.00	90.47	89.50	55.20	92.38
5.	GUJARAT					
	a. Panchmahal	66.67	71.90	73.81	47.14	73.87
	b. Rajkot	64.76	66.19	67.62	38.09	73.93
6.	HARYANA					
	a. Bhiwani	69.20	87.20	85.80	58.30	86.30
	b. Hissar	57.60	66.10	66.10	37.10	68.10
7.	HIMACHAL PRADESH					
	a. Shimla	65.57	69.34	67.92	52.83	57.34
	b. Bilaspur	74.00	82.50	79.70	54.20	74.20
8.	JAMMU & KASHMIR					
	a. Anantnag	65.00	65.00	70.00	44.00	46.00
	b. Badgam	60.00	75.00	75.00	30.00	62.20
9.	KERALA					
	a. Quilon	92.90	84.80	86.20	49.00	97.60
	b. Kasargode	73.93	77.73	79.15	59.72	81.04
10.	KARNATAKA					
	a. Bijapur	54.50	48.10	48.10	23.30	51.43
	b. Tumkur	71.90	76.67	75.71	54.20	79.62
11.	MADHYA PRADESH					
	a. West Nimar	70.23	75.7	75.7	55.3	60.85
	b. Mandla	56.54	59.34	57.01	37.38	49.77
12.	MAHARASHTRA					
	a. Nanded	50.50	66.20	53.80	38.10	71.50
	b. Pune	NI	93.00	91.00	NI	78.60
13.	ORISSA					
	a. Ganjam	39.00	67.00	67.00	26.70	53.80
	b. Sambalpur	56.00	76.80	70.80	51.38	58.70

14. PUNJAB					
a. Patiala	68.60	73.30	73.30	46.70	87.60
b. Sangrur	51.10	60.20	60.20	37.00	78.70
15. RAJASTHAN					
a. Bharatpur	28.20	37.60	37.60	17.40	39.10
b. Jhalawar	37.70	46.50	48.30	20.00	30.20
16. TAMIL NADU					
a. Coimbatore	66.51	82.08	81.13	40.56	94.76
b. South Arcot	56.70	73.80	70.50	38.60	89.06
17. UTTAR PRADESH					
a. Meerut	46.22	52.80	53.77	31.60	62.73
b. Kanput Dehat	15.71	30.95	31.43	15.71	22.38
18. WEST BENGAL					
a. Burdwan	49.53	52.35	52.35	31.13	87.10
b. Murshidabad	27.49	35.07	33.65	16.11	57.14

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**Sl. Name of Metros**  
**No.**

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1. CALCUTTA					
a. District I	55.71	73.33	75.71	14.75	88.6
b. District II	50.48	76.19	66.67	1.10	83.3
2. BOMBAY					
a. District A	87	79	79	48	89
b. District B	91	81	81	37	88
3. DELHI					
a. Urban	81.5	73.6	72.7	55.1	74.3
b. Rural	80.10	72.07	71.07	47.74	74.32
4. MADRAS					
a. North	80.95	89.04	87.14	51.42	96.60
b. South	82.38	88.09	88.09	52.38	92.41

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NI = No Information Available



*Drop Out Rates of DPT 1-3 and OPV 1-3 Vaccines  
in Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States/ Districts	DPT 1 - DPT -3	OPV I - OPV 3
1.	ANDHRA PRADESH		
	a. Cuddapah	19.2	20.3
	b. Warangal	29.2	23.9
2.	ASSAM		
	a. Dibrugarh	11.0	15.0
	b. Nowgaon	18.1	45.2
3.	BIHAR		
	a. Katihar	29.2	33.3
	b. Singhbhum	31.9	35.4
4.	GOA		
	a. North Goa	5.97	6.46
5.	GUJARAT		
	a. Panchmahal	9.54	10.00
	b. Rajkot	15.24	14.76
6.	HARYANA		
	a. Bhiwani	7.5	8.1
	b. Hissar	18.7	18.7
7.	HIMACHAL PRADESH		
	a. Shimla	16.95	17.71
	b. Bilaspur	8.37	10.5
8.	JAMMU & KASHMIR		
	a. Anantnag	28.7	20.9
	b. Badgam	17.36	17.36
9.	KERALA		
	a. Quilon	7.8	6.2
	b. Kasargode	12.3	10.7
10.	KARNATAKA		
	a. Bijapur	18.4	18.4
	b. Tumkur	15.26	15.43
11.	MADHYA PRADESH		
	a. West Nimar	-	-
	b. Mandla	18.06	15.28
12.	MAHARASHTRA		
	a. Nanded	21.0	33.9
	b. Pune	6.12	6.77
13.	ORISSA		
	a. Ganjam	15.0	14.3
	b. Sambalpur	8.28	12.5

14. PUNJAB		
a. Patiala	22.5	22.05
b. Sangrur	6.1	6.1
15. RAJASTHAN		
a. Bharatpur	32.8	32.8
b. Jhalawar	29.1	25.2
16. TAMIL NADU		
a. Coimbatore	14.29	13.13
b. South Arcot	22.9	25.6
17. UTTAR PRADESH		
a. Meerut	23.80	20.83
b. Kanpur Dehat	36.89	37.74
18. WEST BENGAL		
a. Burdwan	26.0	24.7
b. Murshidabad	NI	NI

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**Sl.. Name of Metros**  
**No**

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1. CALCUTTA		
a. District I	9.4	11.60
b. District II	18.3	18.63
2. BOMBAY		
a. District A	10.0	11.0
b. District B	10.0	11.0
3. Delhi		
a. Urban	18.0	17.8
b. Rural	18.12	20.25
4. MADRAS		
a. North	9.60	11.51
b. South	10.63	9.31

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NI = No Information



*Source of Immunisation for BCG Vaccination in  
Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States No. Districts	Hospital	Health centre	Out reach	Private sources	Anganwadi
1.	ANDHRA PRADESH					
	a. Cuddapah	7.3	77.9	0	14.8	0
	b. Warangal	57.5	27.4	5.5	9.6	0
2.	ASSAM					
	a. Dibrugarh	13.5	54.1	27.9	4.5	0
	b. Nowgaon	42.8	45.7	5.7	0	0
3.	BIHAR					
	a. Katihar	0	27.3	68.2	4.5	0
	b. Singhbhum	18.2	7.5	6.4	0	0
4.	GOA					
	a. North Goa	11.9	66.6	2.8	7.6	0
5.	GUJARAT					
	a. Panchmahal	NI				
	b. Rajkot	NI				
6.	HARYANA					
	a. Bhiwani	28.7	34.2	7.5	0.7	23
	b. Hissar	34.7	29.7	27.2	8.2	0
7.	HIMACHAL PRADESH					
	a. Shimla	16.55	69.78	10.07	3.0	0
	b. Bilspur	0	84.1	0	0	0
8.	JAMMU & KASHMIR					
	a. Anantnag	NI				
	b. Badgam	NI				
9.	KERALA					
	a. Quilon	49.7	24.4	1.0	23.3	1
	b. Kasargode	16.6	54.5	3.8	16.03	8
10.	KARNATAKA					
	a. Bijapur	15.7	20.8	58.3	5.2	0
	b. Tumkur	29.44	38.41	29.14	3.31	0
11.	MADHYA PRADESH					
	a. West Nimar	9.5	31.4	30.47	0.47	0
	b. Mandla	5.9	20.0	30.9	0.0	0.95
12.	MAHARASTRA					
	a. Nanded	11.3	32.1	56.6	0	-
	b. Pune	26.9	40.4	22.2	9.9	0.6

13. ORISSA					
a. Ganjam	22.8	61.0	13.5	2.4	-
b. Sambalpur	6.6	78.5	12.4	2.6	-
14 PUNJAB					
a. Patiala	34.9	52.3	6.4	6.4	0
b. Sangrur	54.8	38.9	1.0	15.3	0
15. RAJASTHAN					
a. Bharatpur	13.3	45.0	41.7	-	-
b. Jhalawar	24.7	70.4	4.9	-	-
16. TAMIL NADU					
a. Coimbatore	42.6	35.4	11.4	15.1	-
b. South Arcot	29.4	27.7	34.3	7.6	-
17. UTTAR PRADESH					
a. Meerut	23.47	56.12	11.22	9.8	-
b. Kanpur Dehat	21.21	63.64	3.03	12.12	-
18. WEST BENGAL					
a. Burdwan	7.6	20.7	18.8	2.3	-
b. Murshidabad	12.8	49.0	32.0	6.1	-

Sl. Name of Metros  
No.

1. CALCUTTA					
a. District I	75.2	0	0.8	23.9	-
b. District II	71.6	9.4	3.8	15.1	-
2. BOMBAY					
a. District A	82.0	7.0	2.0	9.0	0
b. District B	66.0	16.0	3.0	15.0	0
3. DELHI					
a. Urban	52.80	35.95	3.37	0	7.86
b. Rural		NI			
4. MADRAS					
a. North	60.5	18.2	1.76	19.41	-
b. South	70.7	9.8	1.16	13.3	-

NI = No Information



*Source of Immunisation for DPT Vaccination  
in Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	Hospital	Health Centre	Out reach	Private Sources	Anganwadi
1.	ANDHRA PRADESH					
	a. Cuddapah	6.0	63.6	-	30.4	-
	b. Warangal	22.2	28.8	5.8	43.2	-
2.	ASSAM					
	a. Dibrugarh	13.5	50.4	25.6	3.9	-
	b. Nowgaon	38.6	33.0	7.1	21.4	-
3.	BIHAR					
	a. Katihar	10.4	37.5	41.7	10.4	-
	b. Singhbhum	18.2	7.5	6.45	2.15	-
4.	GOA					
	a. North Goa	9.59	60.9	3.3	16.6	-
5.	GUJARAT					
	a. Panchmahal	NI	-	-	-	-
	b. Rajkot	-	-	-	-	-
6.	HARYANA					
	a. Bhiwani	26.0	35.0	7.0	3.0	29.0
	b. Hissar	25.9	36.0	26.8	12.9	0.7
7.	HIMACHAL PRADESH					
	a. Shimla	19.5	65.99	10.2	4.76	
	b. Bilaspur	-	82.2	-	-	-
8.	JAMMU & KASHMIR					
	a. Anantnag	NI	-	-	-	-
	b. Badgam	-	-	-	-	-
9.	KERALA					
	a. Quilon	29.2	32.5	1.5	32.6	9.5
	b. Kasargode	8.2	46.5	5.3	32.08	8.02
10.	KARNATAKA					
	a. Bijapur	12.0	17.8	62.7	7.5	-
	b. Tumkur	23.6	38.5	29.8	8.09	-
11.	MADHYA PRADESH					
	a. West Nimar	13.33	32.38	29.04	0.95	-
	b. Mandla	4.28	22.38	31.4	1.90	0.4
12.	MAHARASHTRA					
	a. Nanded	4.3	23.1	65.5	7.1	-
	b. Pune	22.8	41.3	14.7	17.9	3.3

13.	ORISSA					
	a. Ganjam	19.5	59.0	15.3	2.8	-
	b. Sambalpur	4.2	70.5	18.9	7.3	-
14.	PUNJAB					
	a. Patiala	21.3	65.4	1.6	-	-
	b. Sangrur	36.4	51.3	1.3	11.0	-
15.	RAJASTHAN					
	a. Bhratpur	21.3	35.0	42.75	1.3	-
	b. Jhalawar	18.0	66.0	12.0	4.3	-
16.	TAMIL NADU					
	a. Coimbatore	15.6	29.1	16.4	38.9	-
	b. South Arcot	11.8	27.0	45.1	16.1	-
17.	UTTAR PRADESH					
	a. Meerut	21.43	45.53	15.18	17.85	
	b. Kanpur Dehat	7.69	52.31	21.54	18.46	
18.	WEST BENGAL					
	a. Burdwan	7.5	-	-	-	-
	b. Murshidabad	12.8	49.0	32.0	6.1	-

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**Sl. No.      Name of Metros**

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1.	CALCUTTA					
	a. District I	51.3	3.2	3.9	41.5	-
	b. District II	64.1	6.7	2.9	26.1	-
2.	BOMBAY					
	a. District A	47.0	17.0	2.0	33.0	-
	b. District B	32.0	21.0	6.0	41.0	-
3.	DELHI					
	a. Urban	42.55	36.39	3.06	14.36	3.63
	b. Rural	-	-	-	-	-
4.	MADRAS					
	a. North	23.5	25.6	11.7	39.03	-
	b. South	45.4	18.92	4.8	30.8	-

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NI = No Information



*Source of Immunisation for OPV Vaccination in Different Units*  
(ALL RESULTS IN PER CENT)

Sl. No.	Name of States Districts	Hospital	Health Centre	Out reach	Private sources	Anganwadi
1.	ANDHRA PRADESH					
	a. Cuddapah	6.2	62.7	-	31.1	-
	b. Warangal	21.0	29.8	6.1	42.2	-
2.	ASSAM					
	a. Dibrugarh	10.9	47.7	27.7	14.3	-
	b. Nowgaon	37.5	32.5	7.5	22.5	-
3.	BIHAR					
	a. Katihar	9.3	20.4	53.7	16.6	-
	b. Singhbhum	-	-	-	-	-
4.	GOA					
	a. North Goa	10.0	59.0	3.3	17.1	-
5.	GUJARAT					
	a. Panchmahal	NI	-	-	-	-
	b. Rajkot	-	-	-	-	-
6.	HARYANA					
	a. Bhiwani	25.4	34.8	7.7	2.8	29.3
	b. Hissar	33.0	28.7	26.3	11.5	-
7.	HIMACHAL PRADESH					
	a. Shimla	19.44	66.67	9.03	4.86	2.3
	b. Bilaspur	-	84.0	-	-	-
8.	JAMMU & KASHMIR					
	a. Anantnag		-	-	-	-
	b. Badgam	-	-	-	-	-
9.	KERALA					
	a. Quilon	28.2	33.1	1.1	32.6	-
	b. Kasargode	7.19	46.1	2.99	35.3	8.38
10.	KARNATAKA					
	a. Bijapur	11.6	18.1	62.6	7.7	-
	b. Tumkur	18.2	43.4	30.19	8.18	-
11.	MADHYA PRADESH					
	a. West Nimar	13.33	32.38	29.04	0.95	-
	b. Mandla	14.76	21.9	29.0	1.9	0.4
12.	MAHARASHTRA					
	a. Nanded	5.3	20.4	63.7	19.47	-
	b. Pune	22.9	34.6	20.1	17.9	4.5
13.	ORISSA					
	a. Ganjam	18.8	63.0	18.0	3.4	-
	b. Sambalpur	4.0	67.3	21.0	6.4	-

14.	PUNJAB					
	a. Patiala	21.3	65.4	1.6	11.8	-
	b. Sangrur	36.4	51.3	1.3	11.0	-
15.	RAJASTHAN					
	a. Bharatpur	21.3	37.5	40.0	1.3	-
	b. Jhalawar	17.3	65.4	12.5	4.8	-
16.	TAMIL NADU					
	a. Coimbatore	12.9	32.6	15.0	39.5	-
	b. South Arcot	11.7	27.7	44.3	16.3	-
17.	UTTAR PRADESH					
	a. Meerut	17.54	48.24	18.42	16.63	-
	b. Kanpur Dehat	7.58	51.52	21.2	19.7	-
18.	WEST BENGAL					
	a. Burdwan	7.5	20.2	11.7	12.7	-
	b. Murshidabad	12.8	49.0	32.0	6.1	-

**Sl. No. Name of Metros**

1.	CALCUTTA					
	a. District I	55.3	2.5	2.5	39.6	-
	b. District II	60.0	7.8	3.6	28.5	-
2.	BOMBAY					
	a. District A	46.0	17.0	2.0	34.0	-
	b. District B	32.0	21.0	6.0	41.0	-
3.	DELHI					
	a. Urban	44.25	34.03	2.50	15.0	4.03
	b. Rural					
4.	MADRAS					
	a. North	22.4	26.7	12.02	38.79	-
	b. South	47.02	20.0	2.7	30.2	-

NI = No Information



*Source of Immunisation for Measles Vaccination in Different Units*  
(ALL RESULTS IN PER CENT)

Sl. No.	Name of States Districts	Hospital	Health Centre	Out-reach	Private Sources	Anganwadi
1.	ANDHRA PRADESH					
	a. Cuddaph	9.0	72.7		18.3	0
	b. Warangal	36.4	39.4	15.1	9.1	0
2.	ASSAM					
	a. Dibrugarh	10.3	55.9	30.9	2.9	0
	b. Nowgaon	22.2	66.6	5.5	5.5	0
3.	BIHAR					
	a. Katihar	4.8	20.0	60.0	20.0	0
	b. Singhbhum	4.8	1.07	0.5	0.0	0
4.	GOA					
	a. North Goa	8.8	36.2	1.4	9.5	0
5.	GUJARAT					
	a. Panchmahal		NI			
	b. Rajkot			NI		
6.	HARYANA					
	a. Bhiwan	32.5	30.9	6.5	1.6	28.4
	b. Hissari	29.5	33.3	25.6	11.5	0
7.	HIMACHAL PRADESH					
	a. Shimla	16.96	71.43	7.14	4.47	0
	b. Bilaspur	0	88.6	0	0	0
8.	JAMMU & KASHMIR					
	a. Anantnag			NI		
	b. Badgam			NI		
9.	KERALA					
	a. Quilon	33.0	39.8	0.9	21.4	4.9
	b. Kasargode	10.3	53.7	4.7	21.4	10.3
10.	KARNATAKA					
	a. Bijapur	4.1	14.1	732.5	18.1	0
	b. Tumkur	34.78	45.13	27.43	2.65	0
11.	MADHYA PRADESH					
	a. West Nimar	7.1	23.3	25.2	0.95	60.85
	b. Mandla	1.9	15.7	19.52	0.4	0.4
12.	MAHARASHTRA					
	a. Nanded	5.0	25.0	67.5	2.5	0
	b. Pune	NI	38.0	17.6	15.7	7.4
13.	ORISSA					
	a. Ganjam	22.8	59.6	17.5	0	0
	b. Sambalpur	1.8	83.7	11.7	2.7	0

14.	PUNJAB					
	a. Patiala	32.1	55.1	0.05	12.8	0
	b. Sangrur	34.7	49.0	1.0	15.3	0
15.	RAJASTHAN					
	a. Bharatpur	32.4	32.4	35.1	0	0
	b. Jhalawar	18.6	65.1	16.3	0	0
16.	TAMIL NADU					
	a. Coimbatore	12.7	34.8	13.9	38.3	0
	b. South Arcot	4.9	30.9	55.6	8.6	0
17.	UTTAR PRADESH					
	a. Meerut	22.39	52.24	16.42	8.9	0
	b. Kanpur Dehat	18.18	51.52	9.09	21.21	0
18.	WEST BENGAL					
	a. Burdwan	2.8	15.0	9.9	2.35	0
	b. Murshidabad	12.8	49.0	32.0	6.1	0

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**Sl. No. Name of Metros**

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1.	CALCUTTA					
	a. District I	14.7	41.9	3.2	0	54.8
	b. District II	10.4	68.2	0.0	0	31.8
2.	BOMBAY					
	a. District A	14.0	6.0	45.0	0	0
	b. District B	18.0	12.0	43.0	0	0
3.	DELHI					
	a. Urban	37.73	0.0	16.03	0.94	0
	b. Rural					
4.	MADRAS					
	a. North	28.7	25.9	12.9	32.4	0
	b. South	38.1	25.4	6.3	31.8	0

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NO = No Information



*Immunisation Coverage and Source of Immunisation of Pregnant Women  
for Tetanus Toxoid in Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	TT2+Booster	Hospital	Health Centre	Out reach	Private sources	Angan-wadi
1.	ANDHRA PRADESH						
	a. Cuddapah	73.8	11.6	36.7	0	51.7	0
	b. Warangal	76.1	15.6	16.9	2.4	65.1	0
2.	ASSAM						
	a. Dibrugarh	52.8	16.2	53.5	17.21	13.1	0
	b. Nowgaon	38.6	45.2	27.3	9.5	17.8	0
3.	BIHAR						
	a. Katihar	28.1	1.9	5.7	12.4	8.1	0
	b. Singhbhum	31.60	25.8	13.4	6.0	29.8	0
4.	GOA						
	a. North Goa	92.3	0	0	0	0	0
5.	GUJARAT						
	a. Panchmahal	73.81	0	0	0	0	0
	b. Rajkot	73.92	0	0	0	0	0
6.	HARYANA						
	a. Bhiwani	86.3	0	0	0	0	0
	b. Hissar	68.8	0	0	0	0	0
7.	HIMACHAL PRADESH						
	a. Shimla	57.34	29.75	64.46	4.13	1.66	0
	b. Bilaspur	74.2	0	0	0	0	0
8.	JAMMU & KASHMIR						
	a. Anantnag	46.0	0	0	0	0	0
	b. Badgam	62.2	0	0	0	0	0
9.	KERALA						
	a. Quilon	97.6	0	0	0	0	0
	b. Kasargode	81.04	17.5	22.2	0	57.3	2.29
10.	KARNATAKA						
	a. Bijapur	51.43	16.0	10.5	51.1	22.4	0
	b. Tumkur	79.62	41.67	25.6	23.21	9.5	0
11.	MADHYA PRADESH						
	a. West Nimar	60.85	14.12	39.41	45.29	1.18	0
	b. Mandla	49.8	6.45	8.39	54.84	2.58	1.94
12.	MAHARASHTRA						
	a. Nanded	70.5	3.9	24.8	47.0	24.3	0
	b. Pune	78.6	22.8	28.9	14.1	34.2	0
13.	ORISSA						
	a. Ganjam	53.8	29.2	51.3	80.5	0.8	0
	b. Sambalpur	58.7	6.3	68.7	18.0	7.0	0

14. PUNJAB						
a. Patiala	87.6	17.5	48.8	2.4	31.3	0
b. Sangrur	78.7	27.3	43.3	0	29.4	0
15. RAJASTHAN						
a. Bharatpur	39.1	32.8	37.5	21.9	7.8	0
b. Jhalawar	30.2	12.8	92.11	7.1	8.1	0
16. TAMIL NADU						
a. Coimbatore	94.76	22.18	22.18	11.08	44.7	0
b. South Arcot	89.06	20.4	23.2	36.5	19.9	0
17. UTTAR PRADESH						
a. Meerut	62.73	69.17	0	0	30.83	0
b. Kanpur Dehat	22.38	19.2	36.2	27.6	17.0	0
18. WEST BENGAL						
a. Burdwan	87.79	18.2	30.5	11.7	39.6	0
b. Murshidabad	57.1	18.9	27.9	30.9	22.2	0

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**Sl. Name of Metros  
No.**

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1. CALCUTTA						
a. District I	56.2	0	0	32.4	0	0
b. District II	59.5	1.4	0	22.3	0	0
2. BOMBAY						
a. District A	76.0	3.0	0	21.0	0	0
b. District B	45.0	10.0	0	45.0	0	0
3. DELHI						
a. Urban	74.3	39.75	38.85	1.80	17.77	1.80
b. Rural	74.32	0	0	0	0	0
4. MADRAS						
a. North	27.8	27.3	3.9	40.98	0	0
b. South	49.7	10.3	-	38.4	0	0

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*Proportion of Women Who Received Ante-Natal Care in Different Units*

Sl. No.	Name of States Districts	Received	Not Received
1.	ANDHRA PRADESH		
	a. Cuddapah	76.2	23.80
	b. Warangal	81.4	18.60
2.	ASSAM		
	a. Dibrugarh	59.5	40.50
	b. Nowgaon	45.2	54.80
3.	BIHAR		
	a. Katihar	31.4	68.60
	b. Singhbhum	44.3	55.70
4.	GOA		
	a. North Goa	97.1	2.90
5.	GUJARAT		
	a. Panchmahal	80.95	19.05
	b. Pajkot	80.05	19.95
6.	HARYANA		
	a. Bhiwani	70.7	29.30
	b. Hissar	41.5	58.50
7.	HIMACHAL PRADESH		
	a. Shimla	70.62	29.38
	b. Bilspur	82.8	17.20
8.	JAMMU & KASHMIR		
	a. Anantnag	55.0	45.00
	b. Badgam	60.9	39.10
9.	KERALA		
	a. Quilon	99.0	1.00
	b. Kasargode	90.5	9.50
10.	KARNATAKA		
	a. Bijapur	60.9	39.10
	b. Tumkur	80.0	20.10
11.	MADHYA PRADESH		
	a. West Nimar	60.3	39.70
	b. Mandla	60.3	39.70
12.	MAHARASHTRA		
	a. Nanded	67.7	32.30
	b. Pune	78.6	21.4
13.	ORISSA		
	a. Ganjam	51.1	48.90
	b. Sambalpur	62.3	37.70

14.	PUNJAB		
	a. Patiala	79.9	20.10
	b. Sangrur	90.0	10.00
15.	RAJASTHAN		
	a. Bharatpur	32.5	67.50
	b. Jhalawar	27.5	72.50
16.	TAMIL NADU		
	a. Coimbatore	96.6	3.40
	b. South Arcot	94.3	5.70
17.	UTTAR PRADESH		
	a. Meerut	53.77	46.23
	b. Kanpur Dehat	20.95	79.05
18.	WEST BENGAL		
	a. Burdwan	78.4	21.60
	b. Murshidabad	50.4	49.60

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Sl. No.	Name of Metros		
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1.	CALCUTTA		
	a. District I	90.9	9.10
	b. District II	90.5	9.50
2.	BOMBAY		
	a. District A	94.0	6.00
	b. District B	95.0	5.00
3.	DELHI		
	a. Urban	71.62	28.38
	b. Rural	82.1	17.90
4.	MADRAS		
	a. North	96.67	3.33
	b. South	96.68	3.32

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*Reasons for Failure of Immunisation of Children Due to Lack of Information in Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	Unaware of need	Unaware of need to return	Place/ Time of imm. unknown	Fear of of side reaction	Wrong Ideas about cotra-diction	Other
1.	ANDHARA PRADESH						
	a. Cuddapah	43.7	0	2.9	13.4	-	-
	b. Warangal	51.1	4.2	9.5	6.8	-	-
2.	ASSAM						
	a. Dibrugarh	40.9	20.0	3.5	5.2	0	
	b. Nowgaon	42.85	11.9	17.6	8.09	0.95	15.22
3.	BIHAR						
	a. Katihar	59.0	1.0	4.8	5.2	-	-
	b. Singhbhum	41.76	-	-	-	-	-
4.	GOA						
	a. North Goa	48.64	-	-	-	-	-
5.	GUJARAT						
	a. Panchmahal	54.65	27.19	6.98	8.14	2.32	-
	b. Rajkot	36.27	8.82	-	4.90	8.82	1.96
6.	HARYANA						
	a. Bhiwani	38.7	5.0	2.5	3.7	-	-
	b. Hissar	31.2	16.5	7.3	14.7	-	-
7.	HIMACHAL PRADESH						
	a. Shimla	27.52	8.26	0.92	4.59	-	-
	b. Bilaspur	-	24.10	16.96	1.73	-	-
8.	JAMMU & KASHMIR						
	a. Anantnag	NI					
	B. Badgam						
9.	KERALA						
	a. Quilon	1.9	0.5	0	1.4	0.5	1.0
	b. Kasargode	18.99	7.59	1.27	11.39	5.06	6.33
10.	KARNATAKA						
	a. Bijapur	32.7	5.8	8.4	30.2	5.8	-
	b. Tumkur	40.0	-	13.33	26.6	-	20.0
11.	MADHYA PRADESH						
	a. West Nimar	24.54	6.36	-	6.36	6.36	1.82
	b. Mandla	39.62	2.51	8.17	1.88	2.51	-
12.	MAHARASHTRA						
	a. Nanded	29.8	4.7	3.1	7.9	3.1	1.5
	b. Pune	27.2	-	5.0	0.6	-	-
13.	ORISSA						
	a. Ganjam	29.6	4.3	7.4	26.5	4.3	3.7
	b. Sambalpur	41.6	10.4	9.6	8.0	-	-

14.	PUNJAB						
	a. Patiala	24.8	2.4	6.4	11.2	7.2	1.6
	b. Sangrur	23.2	-	8.5	9.6	3.7	-
15.	RAJASTHAN						
	a. Bharatpur	52.66	10.05	10.05	10.05	-	-
	b. Jhalawar	46.0	14.7	11.3	1.3	-	6.0
16.	TAMIL NADU						
	a. Coimbatore	42.57	2.70	0.68	2.03	2.70	-
	b. South Arcot	36.0	4.3	3.2	4.8	-	-
17.	UTTAR PRADESH						
	a. Meerut	25.0	4.03	4.83	4.83	-	-
	b. Kanpur Dehat	28.49	5.38	12.37	6.99	-	-
18.	WEST BENGAL						
	a. Burdwan	29.2	3.7	4.9	6.8	1.2	2.4
	b. Murshidabad	25.9	6.08	26.05	-	-	-

SL. Name of Metros  
No.

1.	CALCUTTA						
	a. District I	26.4	2.7	9.2	-	5.4	25.4
	b. District II	24.7	11.5	6.8	6.8	1.5	21.5
2.	BOMBAY						
	a. District A	26.0	9.0	2.0	9.0	-	-
	b. District B	24.0	13.0	4.0	4.0	-	-
3.	DELHI						
	a. Urban	23.37	10.38	2.59	-	3.89	-
	b. Rural	32.8	21.9	1.6	9.4	1.6	-
4.	MADRAS						
	a. North	34.78	-	-	-	-	-
	b. South	30.9	-	-	-	-	-

NI = No Information



*Reasons for Failure of Immunisation of Children Due to Lack of Motivation  
in Different Units (ALL RESULTS IN PER CENT)*

Sl. No.	Name of States Districts	Postponed till another time	No Faith in Immunisation	Rumours	Others
1.	ANDHRA PRADESH				
	a. Cuddapah	-	11.3	-	-
	b. Warangal	-	-	-	-
2.	ASSAM				
	a. Dibrugarh	4.3	4.3	1.7	-
	b. Nowgaon	6.19	8.5	6.6	16.6
3.	BIHAR				
	a. Katihar	1.0	3.3	2.4	-
	b. Singhbhum	-	-	-	-
4.	GOA				
	a. North Goa	-	10.82	-	-
5.	GUJARAT				
	a. Panchmahal	17.44	4.65	-	5.81
	b. Rajkot	5.88	8.82	-	-
6.	HARYANA				
	a. Bhiwani	5.0	2.5	-	-
	b. Hissar	11.9	6.4	-	-
7.	HIMACHAL PRADESH				
	a. Shimla	11.6	1.78	-	-
	b. Bilaspur	10.09	0.92	2.75	-
8.	JAMMU & KASHMIR				
	a. Anantnag	-	-	-	-
	b. Badgam	-	-	-	-
9.	KERALA				
	A. Quilon	2.3	2.3	0.5	0.5
	b. Kasargode	25.3	11.39	1.27	8.80
10.	KARNATAKA				
	a. Bijapur	1.3	28.5	12.6	-
	b. Tumkur	6.67	-	6.67	40.0
11.	MADHYA PRADESH				
	a. West Nimar	13.67	6.36	1.82	1.82
	b. Mandla	5.03	13.2	1.88	0.62
12.	MAHARASHTRA				
	a. Nanded	3.1	3.1	2.3	-
	b. Pune	14.6	1.3	-	1.3

13.	ORISSA				
	a. Ganjam	18.5	5.5	-	
	b. Sambalpur	-	5.6	-	-
14.	PUNJAB				
	a. Patiala	14.4	11.2	2.4	1.6
	b. Sangrur	11.0	9.8	1.2	3.7
15.	RAJASTHAN				
	a. Bharatpur	-	5.9	-	-
	b. Jhalawar	8.0	-	0.7	4.0
16.	TAMIL NADU				
	a. Coimbatore	20.27	2.03	-	-
	b. South Arcot	2.7	-	-	10.2
17.	UTTAR PRADESH				
	a. Meerut	24.19	8.06	-	-
	b. Kanpur Dehat	8.60	3.23	-	-
18.	WEST BENGAL				
	a. Burdwan	19.2	-	-	-
	b. Murshidabad	-	18.23	-	-

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Sl.    Name of Metros  
No.

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1.	CALCUTTA				
	a. District I	8.1	0.5	2.1	0.5
	b. District II	12.1	3.1	5.7	-
2.	BOMBAY				
	a. District A	7.0	6.0	-	-
	b. District B	12.1	3.1	5.7	-
3.	DELHI				
	a. Urban	6.49	5.19	-	-
	b. Rural	15.6	1.6	3.6	-
4.	MADRAS				
	a. North	-	-	-	-
	b. South	-	-	-	-

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## Reasons for Failure of Immunisation of Children Due to Obstacles in Different Units

Sl. No.	Name of States Districts	Place too far to go	Time of immn. Incon-venient	Vaccinator absent	Vaccine not available	Mothers too busy	Family problems	Child ill not brought	Child brought not given	Long waiting	Attack of measles	Others
		1	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	ANDHARA PRADESH											
	a.Caddapah	1.8	-	-	7.2	9.6	-	1.8	-	-	-	-
	b.Warangal	9.5	-	-	9.5	-	-	7.3	-	-	-	-
2.	ASSAM											
	a.Dibrugarh	7.0	0.9	2.6	0.9	2.6	0.9	5.2	-	-	-	-
	b.Nowgaon	18.09	6.19	9.22	10.0	11.90	12.38	6.19	-	-	-	-
3.	BIHAR											
	a.Katihar	1.0	2.9	16.7	4.3	-	-	6.2	-	1.90	-	6.6
	b.Singhbhum	48.9	-	-	-	-	-	-	-	1.0	3.3	11.0
4.	GOA											
	a.North Goa	40.54	-	-	-	-	-	-	-	-	-	-
5.	GUIARAT											
	a.Panchmahal	8.14	3.49	26.7	5.81	11.63	5.81	3.49	-	-	-	-
	b.Rajkot	-	1.96	14.71	8.82	8.82	0.98	9.80	4.90	0.98	-	6.98
6.	HARYANA											
	a.Bhiwani	-	6.25	-	6.25	10.0	-	-	-	-	-	0.98
	b.Hissar	-	4.6	-	8.2	12.0	11.0	7.3	-	-	-	-
7.	HIMACHAL PRADESH											
	a.Shimla	8.26	-	9.18	5.5	9.51	0.92	2.75	-	-	-	-
	b.Bilaspur	1.78	-	-	16.07	-	11.6	11.6	-	-	-	9.17
8.	JAMMU & KASHMIR											
	a.Anantnag	-	-	-	-	-	-	-	-	-	-	4.46
	b.Badgam	-	-	-	-	-	-	-	-	-	-	-
9.	KERALA											
	a.Quilon	0.5	-	0.5	1.4	0.5	-	6.7	1.9	-	-	5.7
	b.Kasaragode	5.06	5.06	5.06	5.06	8.36	-	31.65	1.27	-	-	5.06





*Distribution of Districts Showing Proportion of Estimated  
Beneficiaries Registered*

**INFANTS**

<b>% Registered</b>	<b>Districts</b>
< 50	Dibrugarh, Thoubal
51-75	Cuddapah, Nowgaon, Singhbhum, Quilon.
76-100	North Goa, Rajkot, Hissar, Bilaspur, Badgam, Bijapur, Pune, Ganjam, Bharatpur, Sangrur, Coimbatore, Kanpur Dehat, Nahor Lagoon, Aizwal.
100 +	Panchmahal, Bhiwani, Sambalpur.
Data not available	Warangal, Katihar, Shimla, Anantnag, Kasragode, Tumkur, Mandla, Jhalawar, Patiala, South Arcot, Meerut, Burdwan, Murshidabad, Shillong, (Tura), Sikkim (East), South Tripura, Nanded, West Nimar.

**MOTHERS**

<b>% Registered</b>	<b>Districts</b>
< 50	Dibrugarh, Nowgaon, Singhbhum, Bilaspur, Bijapur.
51-75	Cuddapah, Bhiwani, Anantnag, Quilon, Bharatpur.
76-100	North Goa, Rajkot, Panchmahal, Hissar, Pune, Ganjam, Sangrur, Coimbatore, South Arcot, Kanpur Dehat, Nahor Lagoon, Thoubal, Aizwal.
100 +	Tripura.
Data not available	Warangal, Katihar, Shimla, Kasargode, Tumkur, Mandla, Sambalpur, Jhalawar, Patiala, Meerut, Burdwan, Murshidabad, Shillong (Tura), Kohima, Sikkim (East), Nanded, West Nimar.

*Districts Showing Difference Between Estimate of Beneficiaries  
Communicated by Ministry of Health and Family Welfare  
and District Estimates*

Name of Districts		
	Pregnant Women	Infants
Districts, where there is no difference in estimates of G.O.I. & States	Warangal Thoubal Kohima	Thoubal Manipur
Districts where State estimates exceed G.O.I estimates	Cuddapah, Katihar, Panchmahal, Bhiwani, Hissar, Bilaspur, Quilon, Kasargode, Bijapur, Tumkur, Ganjam, Patiala, Jhalawar, South Arcot, Mizoram.	Cuddapah, Warangal Panchmahal Bhiwani, Hissar, Bilaspur, Quilon, Kasargode, Bijapur, Tumkur, Ganjam, Patiala, Sangrur, Sangrur, Jhalawar, South Arcot, Mizoram.
Districts where State estimates are less than G.O.I estimates	Dibrugarh, Nowgaon, Singhbhum, Rajkot, Shimla, Anantnag, Badgam, Pune, Mandla, Sambalpur, Bharatpur, Coimbatore, Meerut, Kanpur, Burdwan, Arunachal Pradesh, Meghalaya, Tripura.	Dibrugarh, Nowgaon, Katihar, Singhbhum, Rajkot, Shimla, Anantnag, Badgam, Pune, Mandla, Sambalpur, Bharatpur, Coimbatore, Meerut, Kanpur, Burdwan, Kohima, Tripura, Meghalaya, Arunachal Pradesh.
Data not available	Nanded, West Nimar, Murshidabad, Sikkim, Goa	



*Districts Showing Difference in Results of Target Achievement and Coverage Evaluation Conducted by National Review of Immunisation Programme*

**BCG**

Difference between two observations	Name of District
< 10	Panchmahal, Shimla.
10-24	Goa, Tumkur.
25-49	Cuddapah, Dibrugarh, Nowgaon, Katihar, Rajkot, Bhiwani, Hissar Anantnag, Badgam, Quilon, Bijapur, Meerut.
50 +	Warangal, Singhbhum, Bilaspur, Kasargode, Mandla, Ganjam, Bharatpur, Sambalpur, Jhalawar, Patiala, Sangrur, Coimbatore, South Arcot, Kanpur, Burdwan, Murshidabad,
100 +	Singhbhum.
Range of gap =	9 to 78.96

**DPT**

Difference between two observations	Name of District
< 10	Cuddapah, Goa, Bhiwani, Shimla, Quilon.
10 -24	Anantnag Badgam, Bijapur, Tumkur, Pune.
25-49	Warangal, Panchmahal, Rajkot, Hissar, Kasargode, Bilaspur, Mandla, Ganjam, Burdwan, Sangrur, Coimbatore, South Arcot, Murshidabad.
50 +	Dibrugarh, Nowgaon, Katihar, Singhbhum, Meerut, Kanpur.
Range of gap =	4.2 to 86

## POLIO

Difference between two observations	Name of District
< 10	Cuddapah, Dibrugarh, North Goa, Bhiwani, Shimla.
10 - 24	Nowgaon, Anantnag, Bilaspur, Badgam, Quilon, Bijapur, Tumkur, Pune.
25 to 49	Warangal, Panchmahal, Rajkot, Kasargode, Mandla, Ganjam, Sambalpur, Bharatpur, Jhalawar, Patiala, South Arcot, Burdwan, Coimbatore.
50 +	Katihar, Singhbhum, Hissar, Sangrur, Meerut, Kanpur, Murshidabad.
Range of gap =	6.2 to 87

## MEASLES

Difference between two observations	Name of District
< 10	Goa.
10 - 24	Dibrugarh, Nowgaon, Shimla, Anantnag, Tumkur, Murshidabad.
25 - 49	Cuddapah, Warangal, Singhbhum, Bhiwani, Bilaspur, Badgam, Quilon, Bijapur, Patiala, South Arcot, Burdwan.
50 +	Katihar, Panchmahal, Rajkot, Hissar, Kasargode, Mandla, Ganjam, Bharatpur, Jhalawar, Sangrur, Meerut, Kanpur, Coimbatore.
Range of gap =	5.8 to 83



*Proportion of Children, Under 1 Year of Age Protected  
out of Total Immunised in Different Districts 1987-88*

Sl. No.	Name of States Districts	BCG	DPT 3	OPV	Measles
1.	ANDHRA PRADESH				
	a. Cuddapah	76.58	98.00	98.77	95.3
	b. Warangal	100.00	82.82	75.52	72.61
2.	ASSAM				
	a. Dibrugarh	86.9	90.8	89.2	100.00
	b. Nowgaon	88.21	66.48	63.01	45.90
3.	BIHAR				
	a. Katihar	43.50	90.00	89.3	100.00
	b. Singhbhum	100.00	54.23	45.99	100.00
4.	GOA				
	a. North Goa	96.45	96.25	95.66	72.03
5.	GUJARAT				
	a. Panchmahal	57.59	99.0	94.64	100.04
	b. Rajkot	98.00	87	95	100.00
6.	HARYANA				
	a. Bhiwani	100.00	88.3	88.6	100.00
	b. Hissar		Not available		
7.	HIMACHAL PRADESH				
	a. Shimla	64.65	87.68	86.16	70.52
	b. Bilaspur				
8.	JAMMU & KASHMIR				
	a. Anantnag	Not properly recorded all children shown above 1 year -do-			
	b. Badgam				
9.	KERALA				
	a. Quilon	79.08	79.00	70.85	70.78
	b. Kasargode		Not available		
10.	KARNATAKA				
	a. Bijapur	All Under 1 year Record not available		100%	
	b. Tumkur				
11.	MADHYA PRADESH				
	a. West Nimar	All are shown as below 1 year			
	b. Mandla				
12.	MAHARASHTRA				
	a. Nanded	95.6	96	96.2	96
	b. Pune	90.8	98.2	97.6	89.6
13.	ORISSA				
	a. Ganjam	All reported to be vaccinated below 1 year of age All reported to be vaccinated below 1 year of age			
	b. Sambalpur				

14.	PUNJAB				
	a. Patiala	83.9	98.4	91.5	100.00
	b. Sangrur	99.7	85.9	83.9	99.00
15.	RAJASTHAN	100.00	96.88	96.72	100.00
	a. Bharatpur	100.00	87.63	90.44	100.00
	b. Jhalawar	100.00	82.00	88.45	100.00
16.	TAMIL NADU				
	a. Coimbatore	100.00	100.00	100.00	100.00
	b. South Arcot	100.00	90.9	99.9	100.00
17.	UTTAR PRADESH				
	a. Meerut	100.00	93.9	96.99	100.00
	b. Kanpur Dehat	85.00	45.3	22.8	24.00
18.	WEST BENGAL				
	a. Burdwan	No classification			
	b. Murshidabad				
19.	Arunachal Pradesh	39.00	38.00	38.00	32.00
	a.				
	b.				
20.	Manipur	Not recorded properly			
	a.				
	b.				
21.	Meghalaya	All reported to be protected under 1 year of age			
	a.				
	b.				
22.	Mizoram	75.55	90.03	89.63	96.23
	a.		Do 15%	26%	
	b.				
23.	Nagaland				
	a. Kohima	100	82.5	83.6	100
	b. Mongchum		Not recorded		
24.	Sikkim	89.5	82.5	83.5	93.4
	a.				
	b.				
25.	Tripura	No break up by age at district			



*Distribution of States Showing Proportion of Eligible Pregnant Women Protected Against Tetanus Toxoid*

<b>% Eligibles Protected</b>	<b>Name of States</b>
< 25	Assam, Nagaland, Tripura.
25-50	Bihar, J&K, Rajasthan, Sikkim, Arunachal Pradesh Mizoram.
51-75	Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Manipur Meghalaya, Orissa, U.P., Haryana, West Bengal Delhi (Metro).
76-84	Gujarat, Karnataka, Meghalaya, Maharashtra, Punjab, Tamil Nadu
85 +	Kerala (99.04)

*Distribution of States Showing Proportion of Eligible Protected Against  
Different Groups of Vaccine 1988-89*

**BCG**

<b>% Eligibles Protected</b>	<b>Name of States</b>
< 25	Assam, Nagaland.
25-50	Arunachal Pradesh.
51-75	J&K, Meghalaya, Rajasthan, Sikkim, U.P. West Bengal.
76-84	Andhra Pradesh, Karnataka, Madhya Pradesh, Orissa, Tripura, Mizoram, Delhi.
85 +	Bihar, Gujarat, Haryana, (100), H.P. (94), Kerala (96) Maharashtra, Manipur, Punjab (100), Tamil Nadu, Goa (97).

**DPT**

<b>% Eligibles Protected</b>	<b>Name of States</b>
< 25	
25-50	Assam, Nagaland, Tripura, Arunachal Pradesh.
51-75	Andhra Pradesh, Bihar, J&K, Meghalaya, Rajasthan, Sikkim, Delhi, West Bengal.
76-84	Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Manipur, Tamil Nadu, Goa, Mizoram.
85 +	Haryana (99.53), Kerala, Maharashtra, Orissa, Punjab (98.81), U.P.



## POLIO

% Eligibles Protected	Name of States
< 25	Assam, Nagaland.
25-50	Bihar, Tripura, Arunachal Pradesh.
51-75	Andhra Pradesh, Jammu & Kashmir, Madhya Pradesh, Manipur, Meghalaya, Rajasthan, Sikkim, U.P., Delhi, West Bengal.
76-84	Gujarat, H.P., Karnataka, Maharashtra, Mizoram.
85 +	Haryana, Kerala, Orissa, Punjab, Tamil Nadu, Goa.

## MEASLES

% Eligibles Protected	Name of States
< 25	Assam, Nagaland, Tripura, Arunachal Pradesh, West Bengal.
25-50	Bihar, J&K, Rajasthan, Sikkim, Mizoram.
51-75	Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Orissa, Uttar Pradesh, Goa, Maharashtra, Delhi.
76-84	Punjab.
85+	Tamil Nadu

*Table Showing Comparative Statement of Coverage Evaluation Carried in 1988 and May 1989*

AREA	Date	TT2/B	BCG	DPT3	OPV3	MEA	FV
Cuddapah	5.1.89	76	16	49	50	10	1
Cuddapah	May 89	73.8	32.4	62.8	61.4	26.1	20.4
Bilaspur	17.3.88	64	48	72	70	18	43
Bilaspur	May 89	74.2	74.0	82.5	79.7	54.2	47.2
Kasargode	9.2.88	87	46	67	68	29	23
Kasargode	May 89	81.04	73.93	77.73	79.15	59.72	46.9
Pune	16.5.88	82	72	91	88	41	64
Pune	May 89	78.6		93	91		45.0
Kohima	8.88	51	10	57	57	7	4
Coimbatore		89	31	67	62	29	13
Coimbatore	May 89	94.76	66.51	82.08	81.13	40.56	30.19
Kanpur	6.88	35	10	26	28	2	2
Kanpur	May 89	22.38	1571	30.95	31.43	15.71	8.10
Meerut	.05.88	56	39	46	44	12	28
Meerut	May 89	62.73	46.22	52.8	53.77	31.60	29.70



*Prevalence of Overall Lameness and Lameness Due to Poliomyelitis in Children <5 Years in the Study Units, 1989*

Sl. No.	Name of States Districts	Prevalence of Lameness per 1000 Children <5 Years	% lame Children due to Poliomyelitis to total Lame Children	Polio Prevalence per 1000 < 5 population	**Corrected Prevalence per 1000 <5 Population
1.	ANDHRA PRADESH				
	a. Cuddapah	5.46	50.29	2.58	4.28
	b. Warangal	5.50	83.00	4.57	7.48
2.	ASSAM				
	a. Dibrugarh	1.27	15.00	0.196	0.32
	b. Nowgaon	1.49	46.00	0.69	1.15
3.	BIHAR				
	a. Katihar	6.36	62.90	4.02	6.67
	b. Singhbhum	3.20	48.48	1.59	2.64
4.	GOA				
	a. North Goa	0.79	50.00	0.39	0.65
5.	GUJARAT				
	a. Panchmahal	4.32	66.00	2.88	4.77
	b. Rajkot	2.98	50.00	1.49	2.60
6.	HARYANA				
	a. Bhiwani	1.42	100.00	1.42	2.36
	b. Hissar	4.94	66.00	2.88	6.31
7.	HIMACHAL PRADESH				
	a. Shimla	1.26	57.00	0.72	1.19
	b. Bilaspur	1.42	40.00	0.571	0.94
8.	JAMMU & KASHMIR				
	a. Anantnag	6.26	85.00	5.32	8.8
	b. Badgam	5.80	79.3	4.60	6.11
9.	KERALA				
	a. Quilon	1.59	50.00	0.79	1.31
	b. Kasargode	2.57	42.3	1.08	1.80
10.	KARNATAKA				
	a. Bijapur	8.12	59.4	6.58	10.94
	b. Tumkur	5.50	45.70	2.51	5.57
11.	MADHYA PRADESH				
	a. West Nimar	3.60	92.00	3.35	5.57
	b. Mandla	2.80	63.00	1.79	3.19
12.	MAHARASHTRA				
	a. Nanded	3.26	60.00	1.95	1.92
	b. Pune	2.79	13.3	0.37	0.61

13. ORISSA				
a. Ganjam	6.13	51.4	4.99	8.24
b. Sambalpur	2.92	50.00	1.5	2.50
14. PUNJAB				
a. Patiala	3.35	74.20	2.48	4.12
b. Sangrur	3.89	53.20	3.22	5.33
15. RAJASTHAN				
a. Bharatpur	8.72	82.20	7.17	11.92
b. Jhalawar	5.67	87.30	4.95	8.23
16. TAMIL NADU				
a. Coimbatore	2.79	50.00	1.44	2.39
b. South Arcot	5.90	65.60	3.8	7.79
17. UTTAR PRADESH				
a. Meerut	7.08	84.20	5.9	9.92
b. Kanpur Dehat	12.10	72.50	8.77	14.58
18. WEST BENGAL				
a. Burdwan	-	-	NI	-
b. Murshidabad	2.80	60.60	1.79	2.81

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Sl. Name of Metros  
No.

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1. CALCUTTA				
a. Distt I	3.3	33.3	1.1	1.83
b. Distt II	2.1	68.0	1.43	2.36
2. BOMBAY				
a. Distt A	1.3	43.0	0.56	0.92
b. Distt B	4.5	56.0	2.5	4.20
3. DELHI				
a. Urban	2.28	68.0	1.5	2.49
b. Rural	NI	NI	2.7	4.48
4. MADRAS				
a. North	1.2	74.19	2.28	3.79
b. South	2.97	46.15	0.59	0.98

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\*\* Correction factor 1.25 for uperlimb paralysis and 1.33 for migration and deaths has been applied.  
NI = No Information Available.



*Overall Neonatal Mortality, Mortality Due to Neonatal Tetanus and  
Proportional Neonatal Tetanus Mortality*

Sl. No.	Name of States Districts	Neonatal Mortality 1000 Live Births	Neonatal Tetanus Mortality /1000 Live Births	Proportionate Mortality due to Neonatal Tetanus
1.	ANDHRA PRADESH			
	a. Cuddapah	11.95	1.49	12.46
	b. Warangal	9.46	0.82	8.66
2.	ASSAM			
	a. Dibrugarh	11.7	3.30	28.2
	b. Nowgaon	8.49	1.9	22.3
3.	BIHAR			
	a. Katihar	15.7	8.64	55.03
	b. Singhbhum	13.08	5.86	44.80
4.	GOA			
	a. North Goa	1.95	0	0
5.	GUJARAT			
	a. Panchmahal	24.55	5.89	23.99
	b. Rajkot	5.88	.45	7.6
6.	HARYANA			
	a. Bhiwani	10.33	4.77	45.49
	b. Hissar	11.68	3.14	26.87
7.	HIMACHAL PRADESH			
	a. Shimla	8.93	0.75	8.62
	b. Bilaspur	16.82	0.89	8.2
8.	JAMMU & KASHMIR			
	a. Anantnag	28.42	9.04	31.8
	b. Badgam	38.76	7.9	20.38
9.	KERALA			
	a. Quilon	2.38	0	0
	b. Kasargode	4.27	0	0
10.	KARNATAKA			
	a. Bijapur	13.06	1.36	10.4
	b. Tumkur	11.94	0.44	3.6
11.	MADHYA PRADESH			
	a. West Nimar	5.9	5.9	10.0
	b. Mandla	16.02	0.34	2.12
12.	MAHARASHTRA			
	a. Nanded	-	-	0
	b. Pune	6.2	0	0
13.	ORISSA			
	a. Ganjam	15.84	2.88	18.18
	b. Sambalpur	15.28	2.98	19.50

14. PUNJAB			
a. Patiala	9.5	0.78	8.2
b. Sangrur	4.9	0.41	8.36
15. RAJASTHAN			
a. Bharatpur	15.55	7.21	46.36
b. Jhalawar	16.3	10.08	61.18
16. TAMIL NADU			
a. Coimbatore	4.75	0	0
b. South Arcot	9.35	2.72	29.09
17. UTTAR PREDESH			
a. Meerut	17.6	5.2	29.5
b. Kanpur Dehat	33.49	23.62	70.52
18. WEST BENGAL			
a. Burdwan	NI	NI	NI
b. Murshidabad	10.10	3.91	38.71

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Sl. Name of Metros  
No.

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1. CALCUTTA			
a. District I	0.87	0.8	91.95
b. District II	4.6	0	0
2. BOMBAY			
a. District A	.4	5	0
b. District B	5.0	0.85	40
3. DELHI			
a. Urban	7.2	1.15	15.0
b. Rural	5.68	1.08	20.0
4. MADRAS			
a. North	0.49	0	0
b. South	1.99	0	0

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NI = No Information Available



*Voluntary Agencies and Their Participation in Different Districts Units*

Sl No.	Name of states Districts	No.of Vol-untary Agencies	Participation		Resources	Publicity	Special Camps	Immunisation defined area
			Yes	No				
1.	ANDHRA PRADESH							
	a. Cuddapah	2	2	0	0	2	0	2
	b. Warangal	7	7	-	-	7	7	7
	(Rotary Lions, Inner Wheel etc.)							
2.	ASSAM							
	a. Dibrugarh	Not Available						
	b. Nowgaon	9	8	-	-	-	4	3
3.	BIHAR							
	a. Katihar	4	2	2	0	1	2	0
	b. Singhbhum	10	12	-	0	0	6	10
4.	GOA							
	a. North Goa	Not Available						
5.	GUJARAT							
	a. Panchmahal	Not Available						
	b. Rajkot	-						
6.	HARYANA							
	a. Bhiwani	Not Available						
	b. Hissar	-						
7.	HIMACHAL PRADESH							
	a. Bilaspur	Not Available						
	b. Shimla							
8.	JAMMU & KASHMIR							
	a. Anantnag	Not available						
	b. Badgam	-						
9.	KERALA							
	a. Quilon	Not Available						
	b. Karsargode	3	3	-	2	2	1	0
10.	KARNATAKA							
	a. Bijapur	Not Available						
	b. Tumkur	5	5	-	1	5	5	1
11.	MADHYA PRADESH							
	a. West Nimar	Not Available						
	b. Mandla	Nil	-	-	-	-	-	-
12.	MAHARASHTRA							
	a. Nanded	Not Available						
	b. Pune							
13.	ORISSA							
	a. Ganjam	Not Available						
	b. Sambalpur	6	6	-	-	6	6	0

14. PUNJAB							
a. Patiala	8	8	-	1	8	8	0
b. Sangrur	Not Available						
15. RAJASTHAN							
a. Bharatpur	Not Available						
b. Jhalawar	Not Available						
16. TAMIL NADU							
a. Coimbatore	9	7	0	0	0	2	7
b. South Arcot	5	5	0	2	3	3	0
17. UTTAR PRADESH							
a. Meerut	4	4	-	-	1	-	3
b. Kanpur Dehat	Not Available						
18. WEST BENGAL							
a. Burdwan	Nil -						
b. Murshidabad	Not Available						
19. MEGHALAYA							
a. Tura	1	1	0	1	1	1	0
20. MIZORAM							
a. Aizwal	1	1	-	1	-	1	1
21. NAGALAND							
a. Mokochung	2	-	2	-	-	-	-
b. Kohima	Nil -						

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